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A PERTHSHIRE NATURALIST:
CHARLES MACINTOSH OF INVER

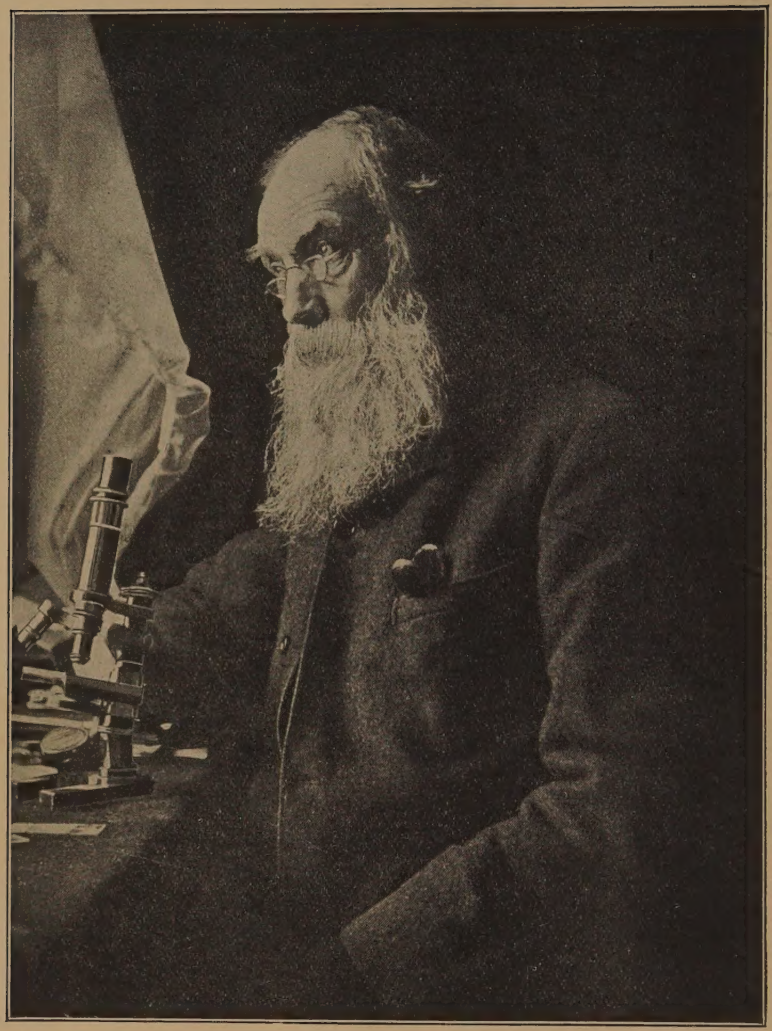

Photo by Jas. Macintosh.

CHARLES MACINTOSH AT HIS MICROSCOPE.

A PERTHSHIRE NATURALIST: CHARLES MACINTOSH OF INVER

By HENRY COATES, F.S.A.Scot.
Introduction by J. ARTHUR THOMSON, M.A., LL.D., *Professor of Natural History in Aberdeen University* & PATRICK GEDDES, F.R.S.E., *late Professor of Botany in St. Andrews University*

With a Chapter on Scottish Folk-Music by HERBERT WISEMAN, M.A., *Director of Music, Edinburgh Education Authority*

ILLUSTRATED

WITH A MAP OF CENTRAL STRATHTAY, 41 SEPIA REPRODUCTIONS OF PORTRAITS AND VIEWS AROUND INVER, AND 14 MUSICAL COMPOSITIONS

T. FISHER UNWIN LTD
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To

The Memory of

THE FOUNDERS AND PIONEERS

of the

PERTHSHIRE SOCIETY OF NATURAL SCIENCE:

a Band of

DEVOTED STUDENTS AND LOVERS OF NATURE,

of whom

CHARLES MACINTOSH OF INVER

was not the least distinguished.

FOREWORD

BY PROFESSOR J. ARTHUR THOMSON, M.A., LL.D., and PROFESSOR PATRICK GEDDES, F.R.S.E.

"GOOD wine needs no bush," but it is a privilege to recommend our friend Mr. Coates's interesting appreciation of a fine type of naturalist who made a success of his life in the true sense. Charles Macintosh was born with or imbued with a love of Nature—it is difficult to distinguish organic inheritance from the influence of the home tradition—and when a serious accident changed him, at the age of nineteen, from saw-miller to rural postman, he had opportunities in a particularly charming countryside to trade with his talents. He was passing rich on less than forty pounds a year, for he found the "Open Sesame" to caves of treasure. The plants, the animals, the stones he saw on his long everyday round were problems to him, intriguing and enjoyable. He was one of whom it might be said that Nature was to him an open book—indeed, like an unending serial story. One must remember, also, that in those days his task was a very human one; it was not only in envelopes that he carried the news.

We are glad that Mr. Coates has so skilfully shown us the man among his folk as well as in his place. It is a beautiful picture. When he was fifty-one, Macintosh had to retire, literally weather-worn, but he enjoyed thirty-one more years, on a pension of ten shillings a week! He had his 'cello and his friends—including many learned members of the Perthshire Society of Natural Science; and does Nature ever desert the heart that loves her? Fond of living things, perhaps birds and children most of all, of music and poetry, of wood-turning, of old things, of queer things like toadstools, of his microscope, and of the march of the seasons, he never had a dull moment. Perhaps he never had an unkind thought; certainly he never lost an opportunity of helping a brother naturalist. Of course, he made his discoveries of new creatures and new occurrences, of which anyone might be proud, but the man was bigger than all he did.

There is sympathetic insight as well as scientific skill in the portrait Mr. Coates has given us. It is a work of art and a worthy tribute. We hope it will help to encourage the type of naturalist that Charles Macintosh was, for it needs encouragement to-day.

PREFACE

SHORTLY after the death of Charles Macintosh, when a movement was inaugurated to perpetuate his memory in his native district, I was asked if I would undertake to prepare a short account of his career and scientific work. I gladly agreed to do so, as a tribute to our long friendship and my admiration for his character. I first came in contact with him at the memorable "Fungus Show" held in Perth in 1875, at which we were both exhibitors, and although he was many years my senior our friendship remained unabated to the close of his long life.

In preparing the Memoir, I was conscious that a mere statement of the facts of his life could hardly hope to interest non-scientific readers, unacquainted with the surroundings amid which he lived. I have, therefore, gone beyond the limits usual in such biographies, in endeavouring to draw a picture of social life in the Highlands a generation or two ago; in portraying his immediate ancestors on both sides; and in

describing the scenes amid which he lived, both as they are to-day, and as they presented themselves at various periods of Scottish history. My excuse for these digressions is threefold. In the first place, the folk-lore of the Highlands was a subject always dear to Charles Macintosh's own heart, and he was ever conscious of the importance of rescuing from oblivion old customs, and modes of life in a past age—however seemingly trivial in themselves—before they were lost in the mists of antiquity. Next, I have dwelt at some length on certain of his forebears, not only because they throw light on aspects of his own career, but because they were in many ways remarkable personalities, and typical of all that was best in the peasantry of the Scottish Highlands before the railway and other innovations had levelled down the characteristic differences between North and South. Lastly, the district of which Dunkeld is the centre is unsurpassed both in scenic loveliness and in the romantic incidents of which it has been the scene from the very dawn of Scottish history.

I could not have undertaken this work without the assistance of many friends who knew Charles Macintosh even better than I did. Of those to whom I am thus indebted I must give first place to his only surviving brother, Mr. James

Macintosh, of Dunkeld, who has placed at my disposal all his brother's books and papers, as well as his own fund of information and anecdote. I am also indebted for information to his cousin, Miss Susan Cameron, of Murthly, and to several former members of his choir, and his assistants in the Sabbath School, now scattered in different parts of the country. For assistance in describing his scientific work I have to thank my friends, Mr. James Menzies, an accomplished fungologist, Mr. William Barclay, a well-known botanist, and Past President of the Perthshire Society of Natural Science, and Mr. R. H. Meldrum, who has made a special study of the mosses of Perthshire; also Mr. Carleton Rea, B.C.L., M.A., of Worcester, formerly Secretary of the British Mycological Society, and now Joint Editor of its *Transactions*, to whom I am specially indebted for permission to reproduce eight of the beautiful drawings prepared by Mrs. Carleton Rea.

In regard to his musical work, I have been fortunate in enlisting the co-operation of Mr. Herbert Wiseman, M.A., Director of Musical Studies under the Education Authority of Edinburgh, a distinguished musical critic and teacher, and a devoted student of Scottish Folk-Music. The Hon. Lady Dorothea Ruggles-Brise,

a member of the Atholl family, who has devoted much time to the same subject of study, has also kindly assisted me by reminiscences of the conversations and discussions she used to have with Charles Macintosh.

I am also indebted to my sister, Miss M. J. Coates, for valuable assistance in seeing the work through the press; and to H.M. Ordnance Survey Office for reproducing the Map of Central Strathtay, which it is hoped will enable the reader to follow the topographical references more clearly.

Lastly, I have to express my gratitude to those friends who have supplied the photographs with which I have sought to augment the interest and attractiveness of what might otherwise have been rather a bald narrative. Chief amongst these is my old friend, Mr. A. F. Mackenzie, of Birnam, whose thoroughly artistic views of the scenery around Dunkeld will give the reader a better impression of the surpassing beauty of the scenes that Macintosh loved so well than any words of mine could do. The copyright of all the illustrations is reserved.

HENRY COATES.

PERTH, *December*, 1922.

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[1] The older generations of the family spelt their name as indicated in the Family Bible. The younger generation adopted the spelling used throughout this book where reference is made to Charles Macintosh, the Third.

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A PERTHSHIRE NATURALIST

CHAPTER I

INTRODUCTORY:

His Native Strath, in the Past and in the Present.

The story disclosed in the following narrative centres entirely around the little Perthshire Highland village of Inver. Just Inver, the "Meeting of the Waters"—not even "Inverbraan," to identify the lesser of the two streams that meet here. The place was so self-centred that it did not seem necessary to distinguish this particular tributary from all the others which flow into the Tay, above and below. To the people of "The Strath," therefore, it was just Inver, and that was sufficient.

The very name, however, indicates the high antiquity of the place, for the River Braan does not now flow into the Tay at Inver, but at a

point fully quarter of a mile further down the parent stream. The configuration of the ground seems to indicate that the Braan, in common with all our Highland streams, has gradually changed its course, but long ages must have elapsed ere that change took place. We know at any rate that five hundred years ago it must have been a place of some importance, for Bishop Lawder of Dunkeld, who flourished in the fifteenth century, "appointed a chaplain and chorister for Inver." [1] It is interesting to note that this Chaplain of Inver was a Mr. John Stevenson, an "Organist and musick master, and a good man," showing that even in those far-off days the people of Inver could appreciate good music as well as good men. But where the chapel was in which Mr. Stevenson officiated, and in which he discoursed old church music on his organ, who shall say?

Turning to Inver as it is at the present day, many tourists, on their way to the Highlands, may have noticed a little cluster of cottages on their right after passing Dunkeld Station, and just before entering the tunnel which pierces Craig Vinean Hill. If they consult their Baedeker, they will learn that this is Inver, the

[1] Alexander Myln's *Lives of the Bishops of Dunkeld*, written early in the sixteenth century.

Photo by the Author.

THE MEETING OF THE BRAAN AND THE TAY.

Photo by the Author.

INVER, AS IT IS TO-DAY.

birthplace of Neil Gow, the famous Scotch fiddler. I venture to predict that the guide-books of the next generation of tourists will tell them that it was also the birthplace of Charles Macintosh, the Perthshire Naturalist. The village, as it stands to-day, is little more than a cluster of cottages around the old Inn, and straggling up the steep hillside behind it. Of roads there are none, except the highway which leads up the west side of Strathtay, but picturesque pathways wander irregularly among the scattered cottages. Some of these cottages are still thatched, and some are falling into ruin, but others have been slated and kept in good repair. Nearly all have little patches of garden in front, including "kail yairds," as well as lovingly tended flower-borders.

It is the surroundings, however, rather than the village itself, that attract the eye. If the Pass of Birnam is the gateway to the Highlands, then Inver lies just within that gateway, and presents all the elements of surprise as we leave the level stretch of Strathmore and find ourselves within an amphitheatre of rugged hills and lofty mountains, through which mountain streams rush and foam till they join the River Tay, which is here at its loveliest. To understand these features of the landscape aright we have to bear

in mind that, as we enter the Pass of Birnam, we exchange one geological formation for another vastly more ancient, and of which the constituent rocks are as different as it is possible for them to be. The line of demarcation between the two is the line of the "Great Fault," or dislocation, which runs right across Scotland, dividing the Lowlands of the Central Valley from the Highlands of the Grampian Range. To the south of this line we have the comparatively soft and level sandstones of the Old Red Sandstone period, while to the north of it are the hard, crystalline and contorted rocks of the Highland Metamorphic Series, which were untold ages old when the sandstones were being laid down. The distinction between Highland and Lowland Scotland, therefore, is not merely one of surface elevation, or of race and language, but is much more fundamental. The difference in rock structure dominates the romantic features of the landscape, the nature of the soil, and the character of plant and animal life, as well as the attributes of the human inhabitants.

We have seen that in ecclesiastical affairs Inver was an appanage of Dunkeld. This reminds us that Dunkeld was not only one of the very earliest scenes of Christian activity in Scotland, but that it held a premier place for many long

years. Iona, it is true, has the honour of being the first spot to be touched by the feet of Christian missionaries, when Saint Columba and his twelve companions landed there in 563, but not many years elapsed ere the centre of religious life shifted to Dunkeld. Its very name—the hill or stronghold of the Culdees, or "Kalidees"—proclaims its ecclesiastical antiquity. Its other name, "Caledon," reminds us that it was the capital of Caledonia, in the restricted and ancient use of that term, when it applied to the central Highlands, and not to the whole of Scotland, as applied by Sir Walter Scott, and other modern writers.

Let us try to recall some of the scenes which Dunkeld has witnessed, since the first introduction of Christianity. Ere long, St. Columba left his island home to evangelize the mainland, and there is little doubt that amongst the places he visited was the region of Strathtay of which Dunkeld is now the centre. Here he would find a scattered population, eking out a frugal and hardy existence in a forest which extended to the western confines of Perthshire, and from which they got the name of the "People of the Wood." Some converts were made amongst these people, who formed the nucleus of the Church soon to be established. At first a very rude structure was

erected, of wattles and clay, as a primitive monastery to accommodate the kind of monks that were known as Culdees, and who were to a large extent independent of Rome. Some hundred and fifty years later, in 729, Constantine III, King of the Picts, rebuilt the monastery of stone, and transferred to it the monks of Iona, where they had been harassed by the Norse raiders. A century later, in 844, the kingdom of the Picts became merged in that of the Scots, under Kenneth MacAlpine, who successfully defended Dunkeld against the attacks of the Danes. A few years later he built a church at Dunkeld which he dedicated to St. Columba, and transferred to it from Iona the relics of the saint, including his books, his pastoral staff, and the stone pillow on which he slept, in addition to his bones. Dunkeld now became not only the capital of Caledonia, but the centre, or Mother Church of Celtic Christianity,[1] with St. Columba, or St. Colm, as the Patron Saint both of the church and of the town which had begun to spring up around it.[2] The Tay Valley

[1] A relic of Celtic times is still preserved in Little Dunkeld Parish Church, which has one of the ancient flat-sided Celtic bells, such as were formerly used in all the churches of the district.

[2] It was not till two centuries later, in the reign of Malcolm Canmore, that many towns began to be built around the castle of the Baron, or some great monastery or church, where the inhabitants could defend themselves from their enemies. Dunkeld was thus one of the earliest civic foundations in Scotland.

thus became, in the tenth century, the central stronghold of Scotland, and the pivot around which much of her history turned. It was equally removed from the ravages of the Norsemen, the ambitions of the Angles of the Lothians, and the incursions of the Britons of Strathclyde.

Our next scene opens in the reign of the good King David I, youngest son of Malcolm Canmore and Margaret, his Queen, who may almost be called the father of Scottish ecclesiastical architecture. David, who was a devoted supporter of the supremacy of Rome, changed the old semi-independent Culdee Monastery into a cathedral church,[1] expelled the Culdee monks, and superseded their rule by that of a bishop and canons appointed by Rome. This took place in 1127, just four hundred years after the Culdees had been installed at Dunkeld by Constantine III.

Other two hundred years were to elapse ere the present cathedral buildings began to take shape. From this time onwards, however, it is not to the kings that we are indebted for the development of ecclesiastical architecture, but to the bishops, who had grown wealthy and

[1] The original Charter granted by David to the cathedral is still preserved at Cambridge, and is translated from Latin into Gaelic, showing that the latter was then the universal language of the country.

powerful. It was in 1318—just four years after King Robert the Bruce achieved his great victory at Bannockburn—that Bishop William Sinclair, Bruce's "Fighting Bishop," began to build the choir of the present cathedral, on part of the site of the old monastery. Some of the small square red stones of which the choir was originally constructed are still to be seen in the recently renovated building. These were brought from a considerable distance, on horseback, in creels, or "currachs," and it is said that some of the high ecclesiastical dignitaries assisted in their transport.

Not for nearly two hundred years was the work of building and beautifying the cathedral completed. During that period the work was engaged in by several of the bishops. The nave, which now, though in ruins, is still an object of exquisite beauty, with its massive columns and delicately traced windows, was built by Bishop Cardeny, early in the fifteenth century. He also built a castle, or place of defence, for the bishops, containing "a great hall, with vaulted granaries, and larder under it." Prior to that they had resided in what was called a Bishop's Palace, but was in reality little more than a series of Highland cottages, of one or two storeys, "thatched, after the Highland form."

Photo by A. F. Mackenzie.

DUNKELD CATHEDRAL, FROM THE RIVER TAY, WITH CRAIGIE BARNS.

Photo by the Author.

THE RECTORY, ONE OF THE HOUSES OF OLD DUNKELD, NEAR THE CATHEDRAL.

Shortly after the completion of the cathedral, in the beginning of the sixteenth century, a bishop was appointed who has left deep his mark on the history of Scottish literature. This was Gavin (or Gawin) Douglas, known as the " Poet Bishop," who translated Virgil's *Æneid*, the first version of a Latin classic to be published in Britain.

Hitherto we have watched the cathedral pile gradually growing in beauty and order. Our next scene brings us to a sad reversal of that process. In 1560 the zealous but heedless Reformers, having already defaced the ancient Church of St. John in Perth, attacked that other fane fifteen miles further up the banks of the Tay, and left it roofless and shorn of much of its ancient adornment.

The dangers which threatened the cathedral did not end with the Reformation. In Covenanting times, after Claverhouse had been killed at the Battle of Killiecrankie, on July 27, 1689, his victorious Highland host hastened down to Dunkeld, confident of carrying all before them. When they reached the cathedral town, however, they met with unexpected resistance. The town, and especially the cathedral, was stoutly defended by the Cameronians, a body of Covenanting troops, under Colonel Cleland.

At first the Jacobite troops, who were commanded by General Cannon, appeared to be successful, but the stubborn Cameronians, though driven to take refuge in the tower of the cathedral, would not give in. At length they determined to destroy the town, as the only way of driving out their enemies. They therefore sallied out with burning brands attached to the ends of their spears, and set fire to all the buildings where the Jacobites had taken refuge. In the conflagration which followed, every house in Dunkeld was destroyed save three in the vicinity of the cathedral, which still stand as relics of pre-Reformation Dunkeld. Like "Bonnie Dundee," Colonel Cleland fell in the hour of victory, and is buried in the choir of the cathedral, which he defended so stoutly. Since that day the Cameronians, now known as the 26th Scottish Rifles, have won renown on many fields, and not least in the recent Great War.

I have lingered over the story of Dunkeld's Cathedral Church, because it epitomises, not only the history of the Strath, but, to a considerable extent, the history of Scotland itself. It introduces us, too, to some of the most notable names on Scotland's Roll of Fame.

From a Contemporary Print.

DUNKELD IN THE SEVENTEENTH CENTURY.

THE McINTOSH FAMILY BIBLE.

CHAPTER II

HIS FOREBEARS:

1. Village Life in the Eighteenth Century.

I do not intend to refer in detail to all Charles Macintosh's more immediate relatives, but shall confine myself to those whose lives and characters throw light on his own. Incidentally, too, we shall find that they cast some side-lights on the customs of the time which are interesting to recall.

It is the less necessary to give a formal catalogue of his forebears, because I am enabled to present a transcript of the Family Bible. This is a "human document" which is always of value, because it is written at the time of the events which it records, and presents no temptation to embellishment of any kind.[1] The present example may be taken as typical of what was a

[1] In the Scottish Law Courts the Family Bible is accepted as evidence of birth.

universal custom in rural Scotland before registration became compulsory under the Scottish Registration Act of 1854, and for this reason is worthy of preservation, *verbatim et literatim*. It runs as follows :—

Charles McIntosh born May 3rd 1761. Died 25th Jany. 1833.

Jeen Forbes his wife born July 5th 1767. Died 14th June 1857.

Charles McIntosh and Jeen Forbes his Wife was married the 5 Day of August 1788.

William McIntosh first Lawfull Son to Charles McIntosh and Jeen Forbes in Inver was born upon the 11 Day of May 1789.

James McIntosh Second lawfull Son to Charles McIntosh and Jeen Forbes in Inver was born the 16 Day of December 1791. Died 9th May, 1879.

Elspet McIntosh first Lawfull Daughter and third Child to Charles McIntosh and Jeen Forbes in Inver was born the 21st Day of September, 1794.

Charles McIntosh 3^{d} son & 4 child to Charles McIntosh & Jean Forbes was born July 12th 1797. Died 4th Novr. 1867.

Elizbeth McIntosh Second lawfull Daughter & Fifth child to Charles McIntosh and Jean Forbes was Born the 10 Day October 1800. Betty died December, 1872.

John McIntosh fourth Son & 6 child To Charles McIntosh & Jean Forbes in Inver was born the 20 Day of Sepr. 1802.

May McIntosh Seventh child and third Daughter to Charles McIntosh and Jean Forbes in Inver was born the 27 Day of May 1806. And died October 1831.

Donald McIntosh Eight child and fifth Son to Charles McIntosh and Jean Forbes In Inver was born the 15 Day of November 1808.

The family tree of Charles McIntosh, father of the subject of the present memoir, is continued on another leaf of the Bible, as follows:—

Charles McIntosh was born at Inver 12th July 1797. [Died 4th November, 1867.]

Mary Cameron his Wife was born at Murthely December 6, 1805. Died Septr. 3rd. 1896.

They were married at Perth by the Revd. [J. W.] Masee on the 19 September 1836.

Charles McIntosh their first son was born on the 27th March, 1839. [Died January 5, 1922.]

Mary Anne McIntosh their first daughter and second child was born at Inver third September 1841. [Died at Inverness, Sept. 22, 1917.]

Thomas Cameron McIntosh their second son and third child was born 17th day of July, 1843. Died 17th April 1878 in Edinburgh.

James McIntosh their third son and fourth child was born 19th January, 1846. [Married 2nd June, 1893.]

One or two features of this record are worthy of note in passing. In the first place, English readers may be surprised to note that the wife retains her maiden name in the register. In Scotland she never loses her identity on marriage as completely as she does in England. Even in legal documents her patronymic is retained, along with that of her husband. The grandfather's family consisted of eight children, born

within a period of less than a score of years. In those days, this would be considered a very moderate family. In Scotland it was the usual custom for the eldest son of a family to be called after his grandfather. This holds good in the present case, although it so happens that the father and grandfather were both called Charles. It is interesting to note the old spelling of the female names. In the middle of the record "Jeen" becomes changed to the more modern "Jean." The second daughter began life in the first year of the century as "Elisbeth," but died towards its close under the more familiar and affectionate name of "Betty." May, who died ere she had reached her twenty-fifth birthday, doubtless got her name from the month of the May blossom, in which she was born. The last fact I shall note about this very human document is that it is a sad commentary on the fallability of memory, and the proneness to procrastination. The more joyful events—the marriages and births—are all carefully chronicled, but in several instances the deaths have been omitted to be added. Doubtless the distractions of grief put the family record out of mind for a time, and afterwards, when the omission was noticed, the precise date may have been forgotten.

One day, about the year 1783, a young High-

land woman of the peasant class might have been seen trudging wearily down the road that led from the glens of Atholl through Strathgarry, Strathtummel, and Strathtay. On she goes, past the field of Killiecrankie, where her forefathers had fought victoriously, past the village of Moulin—Pitlochrie had hardly begun to exist—past the clachan of Dowally, until she reaches the spot, within a mile of Dunkeld, where the West Ferry crosses the Tay to Inver. Here she pauses on the grassy bank to rest her weary limbs, then rings the bell which is erected there for the purpose of attracting the boatman from his house on the other side. Soon the small passenger boat takes her over to where the mill lade falls into the Tay in a miniature cascade, and, as night is closing in, she finds herself safe in the little secluded village of Inver.

The " woman " whom we have been describing was none other than the Charles McIntosh whose name appears at the head of the Family Bible register, and the grandfather of that other Charles Macintosh [1] whose name this book is intended to perpetuate. He had fled from his native glen in Atholl, disguised as a woman, to avoid being pressed into the service of the East India Company, a fate which not infrequently

[1] See footnote on page xvii regarding the spelling of the names.

befell the natives of the Highland glens in those days. Thus true it is that the romance of real life is oft as strange as the romance of fiction, and it does not need the imagination of a Stevenson to conjure up a picture of "kidnapping" in the Highlands. In referring to this incident in after years, he used to say that he was "never so tired in his life" as he was after that long walk, with the unwonted impedimenta of a woman's long skirts dragging at his heels.

The foregoing reference to the West Ferry at Inver recalls an amusing story which Charles Macintosh was fond of repeating. On one occasion, from his house on the high bank above the ferry, the boatman heard someone "hooting" for the boat from the opposite side, just as the shades of night were falling. The boatman, in reply, shouted across, "Is it the big boat or the wee boat ye want?"—the former being for vehicles and the latter for foot passengers. No articulate answer coming back, he set out in the gathering gloom with the "wee" boat. On landing among the thick trees on the further shore, he found indeed that it was a two-footed passenger that had been calling, but one with two wings also, for it was a screech-owl that had been breaking the stillness of the night!

If 1783 was the precise date when Charles

McIntosh (the First) came to Inver, then he was a young man of twenty-two at the time, having been born in 1761, just one year after George III came to the throne. When we remember that in those days there were not only no railways and no telegraphs, but even no mail coaches, it will easily be understood that there was not much danger of McIntosh being traced to Inver, which in those days can have had very little communication with the outside world. Indeed, it was in this very year, 1783, that the running of mail coaches was authorized by William Pitt, but it was in the following year, 1784, that they actually started running. Before that, all the mails had been carried by post-boys on horseback, at a rate not exceeding four miles an hour! It was thought that they did very well if they conveyed the letters from London to Edinburgh within six days, and indeed there were sometimes not very many letters to convey.

Charles McIntosh at once settled down in Inver, in a little thatched cottage, almost hid from sight, behind the village inn. This cottage, to which he took home his young wife, Jeen Forbes, five years later, is still standing, although now in a ruinous and uninhabitable condition. It was always spoken of affectionately, by the members of the third generation, as "Grannie's

cottage," for she survived her husband by almost a quarter of a century.

Nearly opposite McIntosh's cottage stood another humble home which has become famous as the dwelling of one of Scotland's foremost worthies. This was the cottage of Neil Gow, the most celebrated "fiddler" the Highlands have produced. Just four years after McIntosh came to Inver, a scene was enacted in that cottage which is worthy of record, for then the greatest of Scottish poets visited the greatest of Scottish violinists. It was on the 31st of August, 1787, that Robert Burns, travelling through the Highlands in company with William Nicol, came to Dunkeld, after having visited the "Birks o' Aberfeldy," which he has made famous for all time by his exquisite lyric. At Dunkeld they were the guests of Dr. Stewart, a well-known residenter, and at breakfast Neil Gow joined them. Burns, in his notes on the tour, thus describes the scene: "Friday—Breakfast with Dr. Stewart. Neil Gow plays; a short stout-built honest Highland figure, with his greyish hair shed on his honest social brow; an interesting face, marking strong sense, kind open-heartedness, mixed with unmistrusting simplicity." Later in the day, after a visit to the summit of Birnam Hill to admire the unrivalled view, the party

Photo by Miss Jessie Cameron, Murthly.

CHARLES MACINTOSH AT "GRANNIE'S COTTAGE," INVER.

Photo by the Author.

THE ELL-MEASURE GAUGE IN THE MARKET SQUARE, DUNKELD.

adjourned to Neil Gow's cottage in Inver, where a jovial evening was spent, enlivened with the flow of wit, and the magic strains from Neil's bow, which he was said to wield with a brilliancy which has seldom been equalled, particularly on the up stroke. Lastly, before returning to Dunkeld, a visit was paid to Inver Inn, for a parting "deoch an doruis" of Atholl brose. Before leaving, Burns scratched the following lines on the window of the inn parlour, with a diamond which he carried in his pocket for that purpose :—

Ye gods, ye gave to me a wife out o' your grace and pleasure,
To be the partner of my life, and I was glad to have her;
But if your Providence Divine for better things design her,
T' obey your will, at any time, I'm willing to resign her.

These delightfully ironical words were supposed to come from the lips of the landlord of the inn, and were inspired by the scolding tones which were heard proceeding from the "guid-wife" in an adjoining apartment.[1] Unfortunately the glass with the inscription was smashed when an attempt was made to remove it from the sash for preservation some years ago. At the time of this visit, Neil Gow was in his sixtieth year, but Burns was a young man of

[1] Neil Gow composed a March entitled "The Landlady of Inver Inn," which probably refers to the same lady.

twenty-seven, at the height of his fame. After taking farewell of the fiddler, the poet returned for the night to Dunkeld, where he put up at Culloden House Inn, a building which had been erected in the year of the Battle of Culloden, and which now accommodates the Royal Grammar School of Dunkeld.

It is not certain whether Charles McIntosh was actually present at the famous gathering in his neighbour's cottage, which has just been described, but in any case the two families soon came to be on intimate terms with each other. The bond between them was the love of music, which was common to them both. In after years, Neil Gow, when quite an old man, gave lessons in violin playing to at least two of Charles McIntosh's sons, one of whom afterwards joined Neil Gow's sons in Edinburgh in following up a musical career.

Charles McIntosh's own musical talent was employed in acting as precentor, or leader of psalmody, in the parish church, an office in which he was followed by his son Charles, and afterwards by his grandson of the same name, the subject of the present biography—a trilogy of effort devoted to the cause of church praise to which it would be difficult to find a parallel.

The calling which McIntosh adopted was

that of hand-loom weaver, which was an important one in those days, when the power-loom was unknown, and when each district provided for its own requirements. In his cottage, he had two looms in one of the rooms, and a warping-mill in a loft above. The cloth that was produced consisted chiefly of fine linen sheets and towels, and especially a kind of quilted bed-cover, with a honeycomb texture, in which white and blue threads were interwoven. The linen yarn was made from flax grown at Blair Atholl, Calvine, and Struan, and was wound on to the beams in the warping-mill in the loft. The blue threads for the bed-quilts were a native production also, having been dyed in the village. Other weavers from neighbouring villages used to bring their yarn to McIntosh to have it "warped" on his mill, and thus in time he worked up quite a brisk trade. There was always a ready market for the product of his looms, either in the farms and "big houses" around, or in the town of Dunkeld. The weavers who made piece-goods, for women's dresses or men's suits, took them in carts to the weekly market in Dunkeld, and there sold them by the ell, generally to customers for their own use. In the Market Square at the present day there may still be seen the bronze ell-measure gauge by which the

merchants tested the accuracy of their measuring sticks. It is built into the wall of an old house in the corner of the square near the cathedral and bears the date 1706. It must, therefore, have been in use in the time of Charles McIntosh and his contemporaries. The men who bought the pieces of " home-spun " had them made into suits by working tailors, who went from house to house soliciting orders, and whose remuneration amounted to the magnificent sum of one shilling a day, and their food, which is less than the pay of a working tailor at the present day, for one hour. This occupation was called " Whippin' the cat." In the same way the women employed itinerant dressmakers to work up their purchases, and at the same modest rate of pay.

In those days the family hose and stockings were made from home-spun wool. The procedure followed by Mrs. McIntosh, senior, is typical of the custom of the times. When her stock of hosiery began to run low, she would buy a fresh sheep's skin from the butcher, and stretch it over a tub of boiling water, with the fleece uppermost. After a time the wool came clean off the skin, and, after being carefully scoured, it was carded, or combed out, with hand cards. Lastly, it was spun into yarn by her own deft hands on the old spinning-wheel, and ready for the knitting

needles, unless she sent it to the village dyers, to be coloured with natural vegetable dyes. Even the skin from which the fleece had been removed was not wasted, for it was stretched, while still wet, on a wooden frame, like that of a riddle, and converted into a "Weicht" for carrying grain or chaff.

Before taking leave of old Mr. and Mrs. McIntosh, we will glance into their home one evening, when it is growing dusk. Going first into the kitchen, we find that the floor consists of mother-earth, beaten hard with the tread of many feet, and yet not so hard as to be cold or uncomfortable, as stone would be. If we had looked into "the room" in passing, "ben the hoose," we should have found that it was carefully floored, with deal flooring. At the further end of the kitchen a fire is blazing cheerfully on the low wide hearth, the fuel consisting entirely of logs of wood from the adjoining plantation. The wide open chimney is furred with the crisp and clinging soot produced by the burning of wood or peats, and which, if it does catch fire, will smoulder with a dull red glow for days. The fireplace is so wide and open that when it rains the drops can be heard sizzling in the fire, and, if it is heavy, will even put the fire out. Over the fire hangs the blackened chain and hook

from which the ample pot is suspended. On either side is fixed a "cruisie," the primitive form of lamp which was the only source of illumination in rural Scotland in the days of our grandfathers. "Illumination" is almost an ironical term to use in this connection, so feeble was the light produced. The cruisie consisted of two iron cups, one placed inside the other, and both having spouts. The upper cup contained whale-oil, from which a cotton wick—or sometimes only some rush-pith—projected over the spout. The under cup was to catch the drops of thick oil which fell as the wick burned. It can easily be imagined that it was impossible to carry on the delicate work of weaving fine linen cloth by the aid of a light such as this, so, during the long winter months, the loom was silent from sundown till sunrise. It would hardly have been possible even to read, but that type, in those days, was considerably larger than it is now, and also that eyesight was less defective, owing to the more natural lives led by the people.

Speaking of reading suggests a glance at Grandfather McIntosh's bookshelf, fixed by the ingle-neuk, under the cruisie. Fortunately we are able to judge the quality of the little library, for its contents have been piously preserved. The books, if few in number, were solid in

character, both as regards their interiors and their exteriors. To take the latter first, they are all home-bound in real calf's skin, with the mottled hair still on, and with ample enveloping margins. They are bulky tomes, intended, not for skimming, but for reading and re-reading. Prominent, of course, are copies of the Bible, both in English and in Gaelic,[1] including one edition with "Original Notes and Practical Observations," by the Rev. Thomas Scott, published in London in 1788. There is also a well-thumbed *Dictionary of the Bible and Concordance*, compiled by the Rev. John Brown about the middle of the eighteenth century. Theological and devotional books make up the bulk of the remainder of the little library, but fiction is not altogether wanting, if that term can be applied to so solid and improving a work as *The Man of Feeling*, by Henry Mackenzie (1745–1831).

Turning from the mental to the corporeal food that was dispensed in "Grannie's cottage," we find that it was no less solid and nourishing. Its staple consisted of oatmeal from the village

[1] Gaelic has not been the general language of the people in Inver or Dunkeld for some hundreds of years, but it is still spoken immediately to the north and west, up Strathtay and Strathbraan, in such places as Dowally, Dalguise, Trochrie and Amulree.

mill, potatoes and greens from the "kail yaird" across the road, and pork from the pigsty adjoining the house. Wheaten bread was an unknown luxury, and butcher-meat almost equally so, save for an occasional "jigot" of "braxey" mutton, got from a neighbouring farmer—that is, the leg of a sheep that had died of the brain disease known as "staggers." Breakfast consisted of oatmeal porridge, with either sweet or butter-milk. The mid-day meal was made up chiefly of broth, prepared from the home-grown and salted pork, with garden vegetables added, and thickened with barley, grown in the fields of the strath. Supper would consist of girdle-scones, or "bannocks," and oat-cakes, both made by the guid-wife herself, and to these would be added cheese from the farmer's "kebbock," or honey from the "skeps" in the garden. Frugal fare this, it will be said, and yet it has nourished many of the scholars and many of the heroes that have left imperishable names in the history of our race.

From an Oil-painting.

CHARLES McINTOSH, SENIOR, FATHER OF CHARLES MACINTOSH.

CHAPTER III

HIS FOREBEARS:

2. Village Life in the Nineteenth Century.

As we have seen from the family Bible, the third son of Charles McIntosh the First was born in the old thatched cottage in 1797—within three years of the close of the eighteenth century —and was called Charles also. He received his education in the old Parochial School of Little Dunkeld, in a building on the old road from Inver to Birnam, and which, after the Dunkeld Bridge was opened in 1808, was on the road approaching the bridge. After the passing of the Scotch Education Act in 1872, the pupils were transferred to Birnam Public School, and the building has since been used as a doctor's residence and surgery. The education given in the old Parochial schools of Scotland was excellent so far as it went, and, if the curriculum was not so varied as it is now, the intellectual results

were often remarkable. Especially was this true in the case of the "lad o' pairts," on whose preparation for college the "dominie" often spent many hours of voluntary labour. School fees were charged in those days, but they were not on an exorbitant scale. Sometimes a penny a week was all that was asked from junior pupils, but, in addition, those from the hills and glens were expected to bring one peat each day in winter, to feed the fires in the school and the master's house.[1] In Dunkeld there was more than one dame school, for infant pupils. These were generally conducted by estimable ladies, whose moral training was on a higher level than their scholastic attainments. One of these, best remembered by the *sobriquet* of "Tibbie Toddles," had mastered the simpler elements of the English language, but when she came to a longer word than usual she would say, "That's Latin, daughtie (dearie), pass on!"

Charles must have received a fair education, for he was afterwards able to hold his own in any circle. When he left school, he joined his father as a hand-loom weaver, and worked one of the two looms in the old cottage. He was most

[1] Another perquisite of the schoolmaster consisted of the victims who fell in the cock-fights which were held periodically in the school, and for which the children brought the combatants.

methodical in all his work, and his old " weaving books," giving particulars of the cost and count of yarns, and the nature and disposal of the goods produced, were long treasured by his son Charles, as the authentic record of an extinct Scottish industry.

On September 19, 1836, he was married to Mary Cameron, of Murthly, a woman of remarkable character and ancestry, of whom I shall have more to say presently. The marriage was celebrated at Perth by the Rev. J. W. Massie, Minister of the Independent Chapel in Mill Street, in that city. Probably Miss Cameron was resident in Perth at the time, and would attend Mr. Massie's chapel, as her father had been a keen Independent, and a member of the Independent Chapel in Dunkeld. After their marriage, Charles and his young bride settled down in a small thatched cottage about a stone's-throw from his early home. He continued to carry on hand-loom weaving for about twenty years after his marriage, not in his own house, but on one of the old looms in his father's house. Gradually, however, the industry died out in face of competition with the power-loom, which came into general use about this time, when hand-loom weaving could no longer be carried on at a profit. The change was bound to come, but it deprived rural Scotland

not only of some of its most durable fabrics, but also some of its notable worthies.

Charles now turned to the teaching and practice of music as a profession, a calling for which he was fitted both by family tradition and natural bent. He was a proficient performer on the violin, and a successful teacher of choral music. Mention should here be made of the remarkable series of skilful violinists that Inver and the neighbouring Straths have produced. There were not only the three generations of Gows and the three generations of McIntoshes, but there were also the Murrays, dyers in Inver, Duncan McKercher, the "Atholl Paganini," William McLeish, of Aberfeldy, and several others. Nor has the race died out at the present day, for there are still creditable performers in Inver, Birnam and Dunkeld, to uphold the honourable tradition of the Strath.

In connection with some of the above names, an amusing story used to be told by Charles Macintosh the Third. In the programme of a sacred concert given in the district, the metre of each piece was indicated, according to the custom of the time, by the letters C.M. for common metre, P.M. for peculiar metre, and L.M. for long metre. Before the concert began, a worthy old lady was heard soliloquizing thus :—

"'C.M.,' that's for 'Charlie Macintosh,' and 'P.M.,' that's for 'Peter Murray,' but 'L.M.'—wha' the mischief is that?"

The violin became a favourite instrument in Scotland very early in the history of its use.[1] We are told that it was played in the streets of Edinburgh to welcome Mary Queen of Scots on her arrival from France in 1542, and that was not very long after it had come into general use on the Continent. The instruments, however, were at first primitive and rude in their construction, and it is to be feared that the refined and trained ear of the Queen was not greatly edified by the sounds which greeted her. Gradually, however, the quality of the instruments improved, until the climax was reached towards the close of the seventeenth and beginning of the eighteenth century, when the incomparable violins were produced by the Cremona group of makers in Italy—Amati, Stradivari, Guarnieri, and others. Many of these instruments found their way to Scotland, including the Atholl Highlands, at a time when their commercial value was but a fraction of what it is now, and, amongst others, the Gows and the McIntoshes had several

[1] In earlier historic times, the harp was the musical instrument in universal use in Scotland, that is, the small harp which was carried on the arm. The bagpipe was a later introduction, coming into vogue about the fifteenth century.

Cremonas through their hands. In time, the Scottish makers, profiting by the examples they had seen from abroad, began to improve in the technique of their art, and some quite serviceable instruments were produced, not only in Edinburgh, but even in remote country districts, such as Strathtay, where Fleming and Hardie, both of Tullymet, were well-known names. The latter, who also composed a number of reels and marches, made some quite good violins from Atholl larch-wood, at the request of Duke John, the planter of the Atholl larch forests.

The musical activities of Charles McIntosh, the Second manifested themselves in three directions, as precentor, as violinist, and as music-teacher. He succeeded his father as precentor in Dunkeld Cathedral, where the services are in connection with the Established (Presbyterian) Church of Scotland, although it is not, in the strictly legal sense of the term, a Parish Church. In olden times the precentors in rural districts of Scotland were not always men of much musical culture, but this could not be said of Charles McIntosh. He had a keen appreciation of all that was best in the old Scottish psalmody, and a sense of what was fitting and reverent in Church music, and, as we shall see, these traits were present in even greater degree

in his son Charles. He remained precentor of the Cathedral until the great Disruption of the Church of Scotland in May, 1843, when he followed his minister, the Rev. John Mackenzie, out of the Establishment, and took up the duty of precentor in the newly-formed Free Church of Scotland. No doubt the influence of his wife, who was always a keen seceder, would aid him in making this choice. He continued to act as precentor of the Free Church until within a year or two of his death, when failing health compelled him to resign.

The second phase of Charles McIntosh's musical activities, that of playing the violin at balls and other functions, brings before us an important aspect of social life in the Highlands a generation or two ago. In those days the lairds and their families did not visit the metropolis as frequently as they do now, if, indeed, they visited it at all, and were content with more homely forms of entertainment in their native straths. Amongst these, dancing occupied a foremost place, and often reached a pitch of high artistic excellence. The chief favourites were, of course, reels and strathspeys, and other Highland dances, including solo dances, such as the Highland Fling. To accompany these with the proper spirit and precision required no little skill on

the part of the musicians, particularly as the *tempo* had frequently to be very rapid. It thus came about that the number of really good performers was strictly limited, and none excelled the group to be found at this time in Strathtay and Atholl, some of whose names have already been mentioned. In this capacity Charles McIntosh became a familiar figure in all the country houses for more than a score of miles around his home, and was on friendly terms with many of the lairds, both great and small, including the Duke of Atholl, the Marquis of Breadalbane, the Lairds of Lude, Dalguise and Murthly, besides many others. In those day there were, of course, no railways, and other means of public conveyance were uncertain and expensive, so the musician generally walked the whole way, frequently by short cuts over the hills, carrying his fiddle under his arm. Many adventures he had on these long tramps o'er moor and dale, and many strange sights he saw. Sometimes the mist would come down on the hills as he was crossing some lonely pass in the early hours of the morning, and his way would be completely lost for a time. On one such occasion, when he was walking home from Kirkmichael over the shoulder of Ben Vrachie, on a Sunday morning, in order to be in time to " precent " at morning

service, he failed to turn up at his home, as expected. His son James, in despair, set out to find a substitute, but, just as the church bells were "ringing in," his father turned up, drenched with the mountain mist, but otherwise quite fit for his work. Four years before he died, the railway was opened as far as Blair Atholl, and he could not get over his surprise at the annihilation of time and space. He would say, "Fancy me being able to be at Inver at five o'clock in the afternoon, and at Blair Atholl that same night!"

One of the most memorable functions at which he and his companions assisted was at Taymouth Castle, on the occasion of the first visit of Queen Victoria and Prince Albert to Scotland, in 1842. This was one of the greatest gatherings of the clans seen in the Central Highlands in modern times, and no expense or pains were spared by Lord Breadalbane to make the visit to his Castle one of regal splendour. At night the clansmen danced on the ample lawns by the light of innumerable torches held by retainers, to the great delight of the royal guests. The music was supplied partly by the Marquis's pipers, and partly by the string band of Charles McIntosh and his companions.

On another occasion the band was playing at

Taymouth for the entertainment of a foreign potentate who was not altogether acquainted with the customs of the Highlands. A famous Highland dancer was engaged for the same occasion to give a display of his prowess as a solo performer, and, as is usual on such occasions, his tunic was completely covered with a jingling array of silver medals, which he had won at various Highland gatherings and dancing competitions. The potentate, however, mistaking the origin of these decorations, saluted him as the hero of a hundred fights, and a distinguished representative of the British Army!

We come lastly to his work as a teacher of music. This, too, like his violin playing, was of an itinerant nature, and was carried on in many surrounding towns and villages, such as Dunkeld, Kirkmichael, Logierait, Ballinluig, Blairgowrie, Logiealmond, etc. His custom was to go to one place for a month at a time, and there conduct singing classes in the evenings. As the chief object was to improve choral singing in the churches, he generally went at the invitation of the minister of the parish, who would encourage the members of the church choir to attend the classes, for which a fixed fee was charged. He always made it a point, however, to return home for the week-end, in order to be

in his place in the "Precentor's Box" on the Sabbath. At first, when he began teaching, the sol-fa system had not come into general use, so he used the old (staff) notation, but with what was called a "Movable Do," which was said to facilitate sight-reading. Latterly he used the more modern sol-fa notation, with the ordinary modulator. He always carried his violin with him, and used it for leading the melody in the concerted singing. Sometimes also he would give violin lessons.

These singing classes constituted what were known in rural districts of Scotland as "Singing Schools," or "Sang Schools," and they had a very marked effect in keeping up the standard of church music, and interest in the art generally. At the end of the month's training, a concert would be given in the district, of sacred and secular music, or of sacred music only if it were held in a church, and in this way the appeal for musical culture was made to a wider circle. It was at one such concert that the old lady already referred to mistook the designations of the various metres. Charles McIntosh's "Song School Book," with the names of his pupils and of the places visited, and scraps of the music he used in teaching, was long treasured by his son Charles, and is still in existence

Charles McIntosh the First, as we have seen, had five sons and three daughters. Of these, it is interesting to note that four—three sons and one daughter—distinguished themselves as musicians. The musical career of one of these, Charles (the Second), we have already traced. James, the second son, began life in Inver as a joiner, but before he had followed that calling for long he was induced by the sons of Neil Gow to join them in Edinburgh as a member of their celebrated String Band, known as "The Reel Players of Scotland," and, latterly, as "Julian's Band." In this capacity he travelled over the whole of Scotland, and the North of England, playing at public assemblies and private balls. Sometimes there were as many as twenty performers in the band. Often he had amusing experiences on these occasions, which he used to relate to his nephews. Once, while travelling in England, their finances reached so low an ebb that they were stranded in an out-of-the-way town. James, who possessed a Cremona, worth, even then, at least a hundred pounds, offered to pledge it in order to relieve the situation, but, when he took it to the local pawnbroker, the latter, whose knowledge of violins was limited, replied that he "thought he might risk fifteen shillings on it"! Had he done so, his

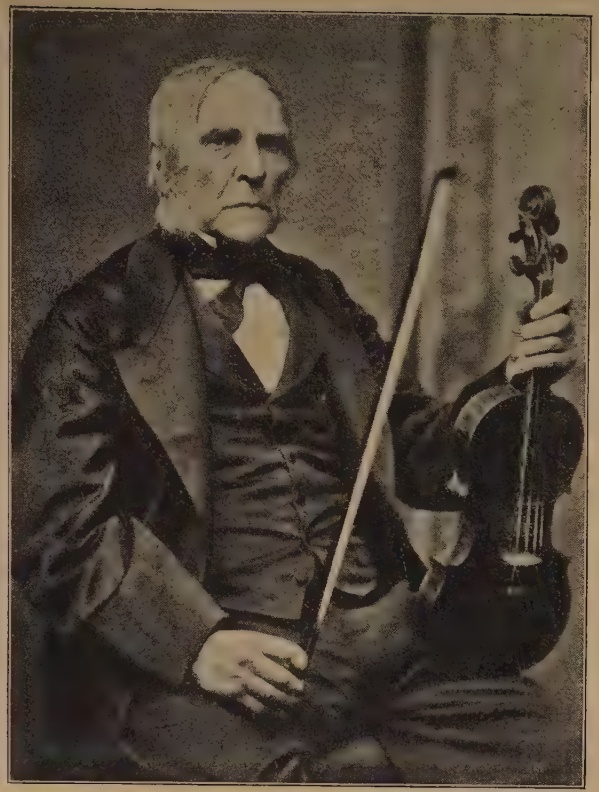
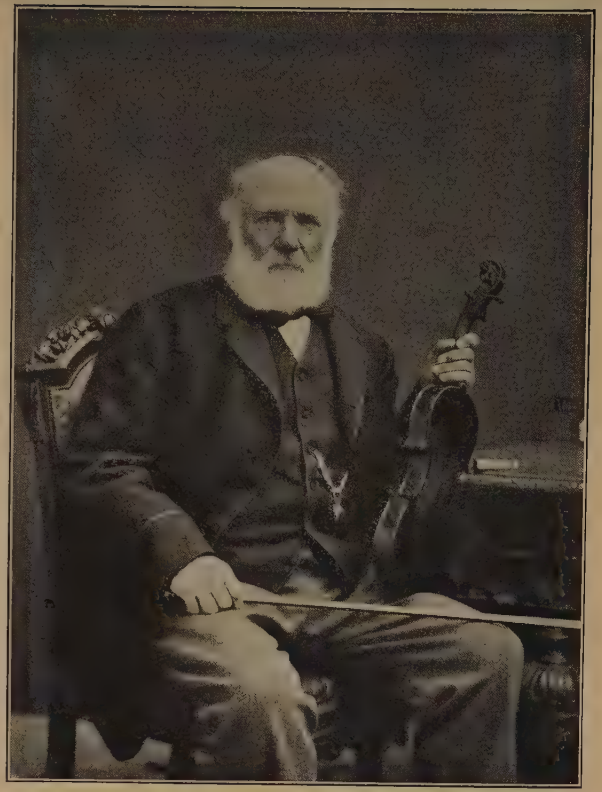


Photo by A. F. Mackenzie.

JAMES McINTOSH, SENIOR, UNCLE OF CHARLES MACINTOSH.



DONALD McINTOSH, UNCLE OF CHARLES MACINTOSH.

descendants might have made their fortune off it to-day.

Another story of rather a remarkable nature was told regarding this same James McIntosh. When he was quite a young man, and working as a journeyman joiner, he was engaged on the work of restoring the Choir of Dunkeld Cathedral, which was being carried out at the instance of John, Fourth Duke of Atholl. One day his favourite snuff-mull disappeared, and he strongly suspected that his fellow-workmen had built it into the panelling of the Choir, by way of a practical joke. In after years, he used to come from Edinburgh to spend his holidays with his nephew, James, in Dunkeld, and would repeat the story of the lost snuff-mull. At length he died, in 1879, at the long age of eighty-eight, and the snuff-mull was forgotten, for the time. It so happened, however, that a few years ago the Cathedral Choir was again being restored, after the lapse of a century, by the late Sir Donald Currie, M.P. James, the nephew, now recalled to mind the long-forgotten story, and told the workmen, half in joke, to keep a look-out for a snuff-mull when they were taking down the old lining. One day, to his great surprise, he met the foreman, and was greeted with the exclamation, " I've found your box ! " He went

to the Cathedral, and there was his uncle's mull, securely nailed to a cross-beam, just as the workmen had fixed it, almost exactly a hundred years previously! The relic was carefully cut out, with part of the beam, and will be preserved as an heirloom in James's family.

James McIntosh, senior, not only played in the String Band, but he became well known in Edinburgh as a teacher of the violin, and he also composed a number of reels and strathspeys, which were published in the collection of Joseph Lowe, of Edinburgh, and were long held in repute.

Of the other members of the family, James's youngest sister, May, who died before she was twenty-five, was also devoted to music, and was said to have played the violin sweetly. Another brother, Donald, went to Dundee, and entered the service of Messrs. Baxter, Brothers and Co., one of the largest manufacturing firms there, and ultimately rose to be manager of the works, a post in which he was succeeded by his son. Although not a musician by profession, he, also, was devoted to the art, and was a violinist of exceptional merit. He frequently played at balls, not for fee or reward, but for the sheer enjoyment of it. On one occasion, after walking all the way from Dundee to Dunkeld, by Coupar Angus and Tullybaccart, a distance of

nearly thirty miles, he found that his brother Charles was playing at a ball, so he joined him, and played all night! It was not easy to tire out a Highlander in those days.

We have already seen how one ancestor of Charles Macintosh, on the paternal side, had to leave his home, in a distant Highland glen, in disguise. Strange to say, we are now to learn how another ancestor, this time on the maternal side, came from a still more remote glen, also in disguise, though for a different reason. His mother, it will be remembered, is described in the Family Bible as Mary Cameron, but her real name was Macdonald, for she was one of the ill-fated Macdonalds of Glencoe, and, indeed, a direct descendant of the murdered Chief of the Clan. The story of the Massacre of Glencoe is, of course, familiar to all readers of Scottish history, although the facts which connect it with the subject of the present memoir are not so well known. The massacre took place on February 13, 1692, in the reign of William and Mary. The Government had proclaimed that all the Highland Chiefs who did not take the oath of allegiance to William by January 1, 1692, should be pronounced outlaws, and their lands forfeit to the King. All the Chiefs complied within the

specified time, with the exception of Alexander Macdonald, head of the Macdonalds of Glencoe. He put off until it was too late, although he actually did take the oath at Inveraray five days after the prescribed date. Less than a month after this, however, 120 soldiers appeared in Glencoe, under Major Duncanson and Captain Glenlyon, both belonging to the Clan Campbell, who were deadly enemies of the Macdonalds. They were hospitably entertained for a fortnight, but then, early one morning, they rose and treacherously slew about two score of the clansmen who had acted as their unsuspecting hosts, including two women, two children, and one aged man, besides the Chief and his wife.

It was long thought that the whole family of the Chief had been exterminated, but it so happened that the two sons, Hugh and John, who were but boys at the time, were startled by a conversation which they overheard between two of the soldiers, and warned their father that mischief was brewing. The Chief was unwilling to believe that any evil was intended, but told his sons to keep a further watch. Early next morning, on hastening home, they found to their horror that their father and mother had been slain, and they at once fled for their lives. After various wanderings, Hugh, the elder, settled at

Dalpowie, in Murthly, while John, the younger, emigrated to America. In the meantime, for greater safety, they had both changed their name to Cameron, the maiden name of their mother, who had been a Cameron of Lochiel. Hugh married at Murthly, and had a family, and one of his grandsons, John Cameron, became the schoolmaster of Pittensorn, near Murthly, and was known far and wide for his exceptional learning, especially in the sciences. He was also a good classical scholar, and translated Burns into Latin. A son of this "Dominie Cameron," named Thomas, was in the service of the Laird of Murthly for the long period of eighty years,[1] and was the father of the Mary Cameron who became the wife of Charles McIntosh of Inver. It thus came about that Mrs. McIntosh, the mother of our Perthshire Naturalist, was the fifth in direct line of descent from the hero of the Massacre of Glencoe.[2] The story had been handed down most carefully from generation to generation, and there can be no reasonable doubt as to its substantial accuracy. Mrs. McIntosh, who had a wonderfully retentive

[1] One of his duties as a boy was to walk before his master to church on Sabbath morning, carrying his big old-fashioned Bible for him.

[2] A detailed account of the incidents referred to in the above narrative was given in the *Weekly Scotsman* for April 24, 1892, shortly after the death of Mrs. McIntosh.

memory, even up to the end of her long life, was fond of repeating it to her children, with unvarying consistency of detail.

The learned Dominie was not the only member of the Cameron family who made a name for himself. A brother of Mrs. McIntosh, Mr. James Cameron, who was born in 1800, was sent out to Madagascar by the London Missionary Society in 1825, as one of their first missionaries to that island, and remained there until he died, fifty years later, never having been home all those years. So greatly did this Pioneer of the Cross endear himself to the islanders that at his death, in 1875, the Queen of Madagascar, who was one of the converts, defrayed the expenses of his funeral as that of a public benefactor of her kingdom, and afterwards erected a marble monument to his memory. His son, the Rev. Dr. Cameron, acquired considerable celebrity as Professor of Classics in the University of Cape Town.

Another James Cameron, better known as "Lochiel Cameron," a cousin of Mrs. McIntosh, who had been gamekeeper at Murthly, became well known as a naturalist. He was appointed by the Government a Special Commissioner to investigate the life-history of the sprat, and came to the conclusion that it was not a young herring, but belonged to a distinct species.

Photo by Mr. Barnard, Cape Town, 1875.

JAMES CAMERON, MISSIONARY TO MADAGASCAR, UNCLE OF CHARLES MACINTOSH.

JAMES McINTOSH'S LOST SNUFF MULL.

I have dwelt at considerable length on the story of Charles Macintosh's ancestry, both on the father's side, and on the mother's: but I think it will not have been in vain if it has brought out plainly, as I trust it has done, from which side he inherited his musical talent, and from which side he inherited his love of natural science, for these, as we shall see, formed the two absorbing interests of his life.

CHAPTER IV

EARLY YEARS

In our last chapter we saw Charles McIntosh the Second married to Mary Cameron, and settled in the little cottage at the "brae-head" in Inver, which was to be the family home for the next generation. The cottage had no name, until, in later years, it came to be known as "Charlie Macintosh's house." Even if Inver had been a very much larger place than it is, that designation would have been sufficient, for it was familiar to all the Strath, and far beyond it. At first it was a low-roofed thatched cottage, consisting of a "butt" and a "ben"; but afterwards, when the family began to grow up, and the Duke of Atholl of that day heard that the sons of his tenant were tall strapping fellows, he ordered the doorway and ceiling to be raised, an upper storey added, and the whole roofed with slates from the Birnam Quarries. At the same time a wooden shed was built on to the end of the house, where, in after years,

Photo by the Author.

CHARLES MACINTOSH'S COTTAGE, INVER.

Photo by G. W. Wilson.

ST. ADAMNAN'S COTTAGE, DUNKELD.

The residence of the Dowager Duchess of Atholl, taken down after her death in 1898.

Charles kept his turning-lathe and other tools, besides many of his specimens and curiosities. But this is anticipating our story.

In this thatched cottage, then, Charles Macintosh, the Perthshire Naturalist, was born, on March 27, 1839, two years after Queen Victoria came to the throne. A month later, he was "christened," not in church, but, in accordance with a usual Scottish custom in those days, in the home. The parish minister performed the simple baptismal ceremonial, which a few friends and neighbours would be invited to witness. Refreshments would be provided for the minister and guests, with possibly a 'dram" for the "auld folk."

Mrs. McIntosh used to tell that, as a child, Charlie was different from other boys. He was always thoughtful and observant, often dreamy and absent-minded. He was of an intensely enquiring turn of mind, and always trying to find out how things were made, and how they worked. He had no fear, and would wander off by himself for hours, watching the wheel at the saw-mill go round, or listening to the birds and other wild creatures in the woods. Yet he was not devoid of boyish fun and mischief. His brother tells of one occasion when their father was playing at a wedding in a

neighbouring cottage. The two boys, having barred the outside door, climbed on to the thatched roof, and, after listening for some time to the strains of music coming up the smoking "lum," they placed a "divot," or sod, on the top of the chimney, and then beat a hasty retreat! History does not relate the sequel.

At an early age, his mother began to teach him his letters, for in those days there were no infant classes in the village schools, and the rudiments of education were usually acquired at home. In 1845, when he had reached the age of six, he was sent to his first school. Since the time of John Knox, the Parochial Schools in Scotland had been closely connected with the parish churches, and so it came about that at the time of the Disruption of the Established Church in 1843, the leaders of the newly-founded Free Church of Scotland built new schools in most parishes for the children of their own people. For the parish of Little Dunkeld,[1] they at first erected a modest wooden building, near the foot of Inchewan Glen, at Birnam, and it was to this wooden Free Church School that Charlie Macintosh was sent, just about a year after its erection. In this school he remained for six years,

[1] "Little Dunkeld" is the parish on the south or right bank of the River Tay, opposite to Dunkeld proper, and includes the villages of Birnam and Inver.

till he was twelve years of age. After that the Free Church erected a stone school building near Torwood, at the east end of Birnam, and this was taken over by the Public Authority (at that time the School Board), under the Scottish Education Act of 1872. The first teacher in the old wooden school was Mr. Sutherland, who was a fairly able scholar, although not a very successful teacher, yet Charlie, who had been well grounded at home, acquired a good knowledge of the "three r's." At that time, Saturday was not a whole holiday, but only a half-holiday.

For the next two years his education was temporarily suspended, while he did "odd jobs" for the neighbouring farmer. In those days, few of the fields were fenced off from each other, as wire fencing had not yet come into general use, so during the summer months children were employed to "herd" the sheep and cattle, and prevent them from straying among the crops. Sometimes, too, Charlie and his brother would be employed as "Guides," to conduct visitors through the Hermitage Grounds to the Rumbling Bridge. It thus came about that in his earliest years he was brought into close and intimate touch with Nature, in all her phases.

Prior to the beginning of last century, Inver was a much more important place than it is to-day, for then there was no bridge across the Tay at Dunkeld, and the only means of passing from one side of the river to the other was by the East Ferry at Birnam, or the West Ferry at Inver. Inver was thus on the main coaching route between North and South, and many an animated scene was witnessed as the four-in-hand drew up in the square in front of the inn to change horses or refresh the passengers. Even after the bridge was built, in 1808, until the railway was opened to Dunkeld in 1856, coaches continued to pass through Inver in considerable numbers. Charles Macintosh and his brother James, when they were boys, were often engaged in holding the horses and helping the post-boys, and they remembered when the road as far up as the entrance to the Hermitage Grounds used to be lined with coaches, carriers' carts and other vehicles. One incident in particular was impressed indelibly on their memory. One autumn day, in the year 1854, James was "herding" cattle in a field opposite the entrance to the Hermitage Grounds, when he heard a commotion on the adjoining highroad. Running to see what was the matter, he found that the Royal Mail had been overturned coming down

the curving hill, and was lying on its side, with the upper wheels still spinning round when he reached the spot. Amongst the passengers who were seriously injured was General Charles Edward Stuart, Count Rochenstart, grandson and last surviving descendant of Prince Charles Edward—"Bonnie Prince Charlie" of the '45. The women of Inver, with Charlie Macintosh's mother at their head, ran to the assistance of the passengers, and, after they had attended to their injuries, General Stuart handed them a sovereign, bidding them buy ribbons with it. Interpreting the command literally, they made a pilgrimage to Dunkeld and there purchased one pound's worth of Royal Stuart tartan silk ribbon! Thus it came about that for many a day the female portion of the population of Inver were adorned with true Jacobite favours. Sad to relate, General Stuart died shortly afterwards from the injuries he received in the accident, and was buried in Dunkeld Cathedral, where the marble tombstone to his memory may be seen at the west end of the ruined nave.

The incident just related recalls a reminiscence of another coaching inn not far distant. This was the Gowrie Inn, which stood on the old road between Inver and Birnam, not far from the present Manse of Little Dunkeld. Here the

innkeeper was coal merchant as well as "Mine Host," and he had an ingenious, if primitive, appliance for weighing his customers' coals. Between two trees which grew by the side of his house a beam was fixed, and across this another beam was balanced, with creels, or baskets, suspended from either end. One basket was filled with boulders, from the bed of the Tay, weighing (approximately) one hundredweight, while the other held the equivalent weight of coal. Thus were our forefathers content with means which lay ready to their hand, without troubling about more elaborate, if more accurate, machinery.

In 1853, when he was fourteen years of age, Charles went to the Royal Grammar School, in Dunkeld, for two winter sessions, continuing his open-air work during the summer months. This school is one of the oldest scholastic establishments in Scotland, having been started by Bishop George Brown, early in the sixteenth century, in one of the chapels of the Cathedral, dedicated to St. George.[1]

It was endowed by King James VI of Scotland, under a Royal Warrant dated February 2,

[1] After Dunkeld was burned, during the Jacobite Raid in 1689, the school was accommodated in a building attached to the east gable of the Cathedral, the marks of which can still be seen on the outside wall.

1567, and further enriched by a grant of the Bishopric Rents of Dunkeld by King William II in 1696. It has had a long career of usefulness, under a succession of able rectors, and is still in a flourishing state, as evidenced by the lengthy and distinguished Roll of Honour which was recently unveiled in memory of its *alumni* who fell in the Great War.

When Charlie went to the Royal School, the rector was Mr. Lowe, who was a good classical and mathematical scholar, and, in particular, a keen student of the stars. He had a good telescope, which had been presented to him by Sir Patrick Keith Murray of Ochtertyre, and took delight in teaching his boys the principles of astronomy. These lessons were not thrown away in the case of his young pupil from Inver, for astronomy was one of the subjects in which Charles Macintosh took a special interest in after life when he came to possess a telescope of his own. When Mr. Lowe retired from the teaching profession, a few years after this, he went to reside in one of the wings of what had been the old inn at Inver, and there, in his declining years, he used to delight the children of the village by giving them demonstrations on the heavenly bodies through his telescope. Another of his hobbies was bee-

keeping, in which he has been followed by the present rector of the Royal School, who is one of the leading authorities on the subject in Scotland.

Amongst Charlie's classmates in the Royal School was at least one pupil who afterwards distinguished himself. This was Mr. Brodie, who became rector of Forfar Academy, and a noted educationalist. Young Brodie's father had the farm of Over-Cardney, between Dunkeld and Blairgowrie, and used to attend the weekly market in Dunkeld every Saturday. In olden days, the Scottish farmers always attended market wearing their "tile" hats, just as they did when they came to kirk on Sunday, and it is said that Mr. Brodie was the last to adhere to this custom in the Dunkeld district. The same custom was observed in Brechin, in the neighbouring county of Forfar, and the story is told of a sporting Earl of Dalhousie who used to amuse himself by driving through the market square in his four-in-hand, and flicking off the farmers' "lum" hats by means of a fishing hook attached to the end of his long whip!

Of course, two winter sessions of six months each was not a very long period to spend at a secondary school, and yet there is no doubt

that the knowledge that Charles gained there helped him materially in his scientific studies in after years. The curriculum consisted chiefly of advanced English, a moderate amount of Latin, and the rudiments of science and mathematics. The science taught in those days did not, of course, include the natural sciences, but chiefly physics and a little chemistry. The class-books used were limited in number, and remained unchanged from year to year—almost from generation to generation—so that parents were saved the expense of buying new books, as the old ones were simply handed on from one member of the family to another. Thus, the well-known *McCulloch's Readers* remained the standard for English composition for many long years, Dr. McCulloch having been rector of the Royal School at the beginning of the nineteenth century, while another standard book was *Gray's Arithmetic.*

When Charles attended the Royal School it was housed in the building near the Cathedral which is now used as the headquarters of the Scottish Horse, the yeomanry regiment which was raised during the South African War by the present Duke of Atholl, who was then Marquis of Tullibardine. Shortly afterwards, the school was removed to the building with which we

have already made acquaintance, known as "Culloden House," and celebrated as the inn where Burns stayed during his visit to Dunkeld. The school still occupies this building, and recently, when some repairs were being carried out, the old hotel sign was discovered, overgrown with ivy.

Yet another change in the local scholastic organization remains to be chronicled. When Charles went to the Royal School, its pupils included both boys and girls, as the practice of co-education in secondary schools had been the universal custom in Scotland, and had produced excellent results. About this time, however, the accommodation began to be severely taxed, and the Duchess of Atholl—better known afterwards as the Duchess Dowager—generously built, at her own expense, a spacious school entirely for girls. This school, which was erected in 1853, and was known as "The Duchess's School," she continued to take the deepest interest in up to the time of her death in 1898. After that the school was closed, and the pupils returned once more to the Royal School. As long as the Duchess's School remained open, the education given was admirable, combining industrial training with sound English teaching. The head mistress, Miss Illingworth,

was a most excellent teacher, and her name is held in affectionate remembrance by those of her pupils who still survive. The principal classroom was large, airy, and well lighted, and the building included a dwelling-house for the head mistress. Before her marriage the Duchess had been a Drummond-Moray of Abercairny, and in the classroom there hung a portrait of her as Lady Glenlyon, painted before her husband succeeded to the dukedom. She was greatly beloved, not only by her own people, but by her Sovereign as well, for she was one of Queen Victoria's closest friends. After the death of the Duke, the Queen more than once came and stayed with her in her picturesque but modest home, known as St. Adamnan's Cottage, exquisitely situated on a grassy terrace, surrounded by old trees, between the old Cathedral and the older Tay.

In order not to interrupt the narrative, I have completed the story of Charlie's "Schools and Schoolmasters"; but we must now turn back a little, in order to recall some incidents which occurred ere his schooling was finished.

In 1840, just one year after Charles Macintosh was born, Rowland Hill introduced universal penny postage, prepayment of letters, and adhesive stamps. Before that date, a letter

from London to Edinburgh cost 1s. 3½d., and the average for all distances within Great Britain was 7d. It is difficult to realize now how great a change this revolutionary reduction wrought in the life of the country. Previously there had been no postal facilities in villages or rural districts. Letters were conveyed by the Royal Mail only to towns of considerable size, and had to be fetched from there by private arrangement on behalf of the people living in the surrounding villages. In 1843, however, Sir Robert Peel's Government enacted that all places which received more than a hundred letters a week should have a receiving office, and a free daily delivery. It was only after this, therefore, that the rural post-runner, such as Charles Macintosh and his brother James afterwards became, began to be a familiar figure in country life.

I have already referred to the Disruption of the Established Church, and the origin of the Free Church of Scotland, in May, 1843. Just two months later, in July of the same year, Charles's brother Tom was born. At this time, and indeed for a considerable time afterwards, it was impossible to obtain a site in Dunkeld for the new church, so the congregation had to worship under the spreading boughs of the

Photo by A. F. Mackenzie.

THE OLD OAK AND SYCAMORE, THE LAST TREES OF BIRNAM WOOD.

great oak and sycamore trees which stand by the bank of the Tay at Birnam. A more ideal spot for the public worship of God it would be hard to find. Under foot was the thick carpet of ancient turf, patterned with meadow flowers; overhead, the canopy of the heavens, with the light filtering through the tracery of foliage, as through some painted window; and all around the choir of singing birds, accompanied by the deep organ-tones of the swiftly-flowing river. In this cathedral of Nature's own making —grander, even, and more ancient than the one of man's making on the opposite bank of the river—Tom Macintosh, a helpless infant, was received into the visible Church through the sacred rite of baptism. Appropriately enough, the ceremony was performed by one of the great leaders of the Free Church movement, the Rev. Thomas Guthrie, D.D., who was also the originator of our Ragged Schools.

A year or two later, a site was at last secured, near the river, in Dunkeld, through the generosity of the Hon. Fox Maule, M.P. for the county, afterwards Lord Panmure, and later Earl of Dalhousie, Minister of War during the Crimean War. Fox Maule had a shooting lodge at Birnam, which was jocularly alluded to by his political opponents as "the fox's lair." At

that time, before the days of the railway, this shooting lodge and the inn constituted practically the whole of Birnam, with the exception of a few cottages by the side of the burn.[1]

The sycamore and oak referred to above are two of the most celebrated as well as two of the finest trees in Scotland. They are probably, also, two of the most ancient. They constitute what is known as "the last of Birnam Wood," and must have withstood the gales and floods of at least a thousand years. Whether they played the important part in Scottish history which Shakespeare has attributed to them, or whether they represent merely an artistic embellishment of his play, at any rate they stood in the direct line of march of the English army which came to place Malcolm on the Scottish throne in place of Macbeth, so there is no inherent improbability in the story that branches were cut from them to "camouflage" the army on its advance from Dunkeld Ferry to the stronghold of the tyrant.

The next incident to which we have to refer is one to which we have already alluded in connection with the life of Charles McIntosh the Second, namely, the visit of Queen Victoria

[1] These houses were painted yellow, with dark stone-coloured facings, a mode which is common among the old houses of Dunkeld, even at the present day.

and Prince Albert in 1842. On that occasion the royal party drove from Perth to Dunkeld in open carriages, accompanied by a brilliant retinue of cavalry and local gentry, and were joined in passing through Birnam by Fox Maule, whose acquaintance we have already made. They then crossed the Tay by the comparatively new bridge, and drove through Dunkeld to the Duke's grounds, where a magnificent repast and Gathering of the Clans had been prepared by Lord Glenlyon, afterwards Duke of Atholl. Charlie Macintosh, who was then a little boy, three and a half years of age, was taken by his mother to the top of the Atholl Arms Hotel, whence he saw the gay cavalcade pass up the street to the ducal grounds. There were fully 900 Clansmen, gathered from all parts of the district, of whom more than half were from the Atholl estates, and all were in full Highland dress.

Towards evening the procession set out from Dunkeld for Taymouth Castle, passing through Inver on their way. Here Charlie and his mother had another opportunity of seeing the young Sovereign and her Consort, for a brief halt was called opposite the Inver Inn, while the health of the Queen was drunk by the villagers with Highland honours. It is said that

the refreshment for this purpose was provided by some Cambridge dons who happened to be staying in the inn at the time. We have already told how Charles McIntosh, senior, went to Taymouth later in the evening to assist in the entertainment of the royal party with his violin.

In 1855, when he had reached the age of sixteen, Charles's schooldays were ended, and the time had come for him to choose a calling. He did not go far afield, for some impulse seemed to draw him to the village saw-mill, whose old mill-wheel had fascinated him as a child. Saw-milling has long been a leading industry in Inver, which stands in the middle of a richly wooded district. It is on the Atholl estate, but the Murthly estate, which is not far distant, is equally famous for its timber. These two estates produce both coniferous and hard-wood trees in almost equal quantities. The larch-woods of Atholl, indeed, are the most famous in the country, both on account of their great extent, and from the fact that they were the first to be planted in Britain. The larch is not indigenous to this country, but is a native of the Tyrolese and Dalmatian Alps. In 1738, Mr. Menzies of Culdares, in Glenlyon, who had been on a tour through the Tyrol, brought home a few seedling plants in his portmanteau. Five

Photo by the Author.

THE PARENT LARCHES, DUNKELD GROUNDS, WITH THE TOWER OF THE CATHEDRAL.

of these were planted in the Duke's Grounds at Dunkeld, near the west end of the Cathedral, by James, Second Duke of Atholl. All five came to maturity, and one of them still stands—the last of the "Parent Larches" of Dunkeld, now (1922) one hundred and eighty-four years old. Two were felled in 1809, and one in 1908, almost exactly a hundred years later. The latter measured fully one hundred feet in height, and fifteen feet in circumference, five feet from the ground, and was found to contain over five hundred cubic feet of timber. It had been struck by lightning, and therefore had to be taken down.

The Atholl estates, like the rest of the country, had suffered materially during the troublous times of the Jacobite risings, in the first half of the eighteenth century, so that when John, Fourth Duke of Atholl, succeeded to the title in 1774, the country was stripped nearly bare of wooding. From that time until his death in 1826 he devoted an enormous amount of skill and energy to the re-afforestation of the region, and so successful was he that he is still known as the "Great Planting Duke." He had great faith in the larch as the species most suitable for hill-planting, and indeed was the first to put this into practice on any large scale.

It is said that during the last few years of his life he covered over fifteen thousand acres of hill-country with larch plantations, using for this purpose more than twenty-seven million young plants. This he did, not only to enrich and beautify his property, but from patriotic motives as well, for in those days, during the Napoleonic Wars, the supply of timber for our "Wooden Walls" was essential to our naval supremacy. The Duke proved also that oak was not indispensable for this purpose, but that larch-wood when used in naval construction was exceedingly durable. To demonstrate this he induced the Admiralty to build H.M. frigate *Athole* entirely of Atholl larch. At the same time he caused Mr. Brown, a shipbuilder of Perth, to construct a merchant vessel, named *The Larch*, of the same material. This ship sailed over practically the whole globe, and met with a lot of rough handling, but stood the test well. She was wrecked at last in the Black Sea in 1827, through the ignorance of the pilot.

Just a year after Charles went to the saw-mill, an event took place which marked the end of one epoch in the history of the district, and the beginning of a new one. This was the opening of the railway from Perth to Dunkeld, which was completed in 1856. At first it was called

the Perth and Dunkeld Railway, but afterwards became part of the Highland Railway. Almost at once Dunkeld became an important tourist centre, and Birnam changed from a Highland "clachan" to a village of summer lodgings and attractive shops, while the Atholl Highlands became familiar to many in the south who had hardly even heard of them before, and who thought that the "Grand Tour" of the Swiss Alps afforded the only opportunity of enjoying mountain scenery. For the people of the Strath themselves, the change was a momentous one. It not only brought to their doors the products of the world, but it brought them in contact with fresh minds and new ideas, and enabled them to visit the towns of the south in a way they had never been able to do before. This was all to the good, but the change had its drawbacks too. The "old order" was changed indeed, and much of the unsophisticated charm of rural life was lost.

In 1857, after Charles had been two years at the saw-mill, and when he had reached the age of eighteen, another event took place, of a purely personal character, which changed the whole tenor of his life. We have seen how entirely oblivious he was as a child to all danger, but at last misfortune overtook him. One day

as he was working at the top end of the bench in the saw-mill a hard knot in the wood caught the saw, and in a moment all the fingers and the thumb of the left hand were taken off by the whirling saw. This put an end to his career as a saw-miller, but in the long run it proved a blessing in disguise, for it forced him to adopt an open-air life once more. What that life was to be we shall see in our next chapter. Ever after his accident he was very sensitive in regard to his maimed hand, and his friends were careful to avoid all reference to it. He always kept it concealed with a black covering, and yet, as we shall see, it was wonderful in how many ways he was able to adapt it to the uses of his life.

Apart from the change of occupation which was presently to follow, his accident had two immediate results. In the first place, he had more time to devote to natural history; and in the second place, he turned more to the study of music. It so happened that about this time his mother had acquired a little book entitled *British Ferns and their Allies*, by Thomas Moore, F.L.S., with coloured plates, published by Messrs. Routledge at the modest price of one shilling. Mrs. McIntosh's inherited love of nature study at once led her to take a keen interest in the branch of botany treated in this little

book, and she had no difficulty in inspiring her like-minded son with her enthusiasm. This was the less to be wondered at when we remember what a rich district for ferns was that in which the Macintosh family lived. Every hill and glen and wood had its own characteristic species, and these were eagerly sought out and recorded. When we come to consider Charles's botanical researches in detail, we shall see what some of the more interesting of these species were. In the meantime it is sufficient to mention that he made and mounted several dried collections of the ferns of the district, some of which he presented to the Birnam Institute and other institutions, while others he gave to friends. This was really the beginning of his scientific activities, which were to end only with his life.

As regards his other recreation, music, this had early engaged his energies. When he was only a boy not more than ten years of age, his father had given him lessons in the violin and the organ, as well as the rudiments of the theory of music, so that by the time of his accident he had become quite a proficient violinist. It might well have been thought that such a serious deprivation as the loss of the fingers of one hand would have meant the end of his

musical efforts, but his was a spirit that was not easily daunted. He at once turned his attention to the violoncello, and found that by dexterous manipulation with the side, or edge, of the truncated hand, sliding it up and down the strings, he could produce almost as complete a variety of tone as he could have done with his fingers. Surely not many musicians have persevered so successfully as he did in the face of so severe a handicap. In the same way he continued to enjoy the playing of the organ, using the edge of the left hand, to produce the bass notes, and filling in the rest of the harmony with the fingers of the right hand. This was the method he employed, too, in composing and arranging music, an occupation, as we shall see, in which he took increasing delight in later years.

Before we leave this first period of Charles's life, we will glance into the cottage in which he was brought up, and see wherein it differed from that other cottage of an earlier generation which we have already visited. Instead of the open hearth of Grannie's cottage, we find an iron grate, in which some coal is burning, as well as wood from the mill. The cruisies have disappeared, and in their place are home-made candles, produced either by repeatedly

dipping wick into melted fat,[1] thus forming what were called "dips"; or else by the use of metal candle moulds, into which the fat was poured, generally two moulds at a time. It was a considerable time before wax candles came into general domestic use, although they had been used for ecclesiastical purposes from quite an early date. As early indeed as the thirteenth century, Bishop Garfred gave, from the produce of his fishing at Perth, "two stone weight of wax, for the light of the great altar," that is, the High Altar of Dunkeld Cathedral (Milne). The essential items of diet—oatmeal porridge and cakes, barley broth, potatoes, and bannocks—are still in evidence, but the fare is now rather more varied. White bread comes from the shops once or twice a week, butcher meat is a more frequent luxury, and the use of tea—generally brewed on the hob—has become universal. At the end of summer the home-fed pig is killed, and the pork, after it has been salted, is hung from the rafters of the kitchen for consumption during the winter months. Sometimes a well-fed animal will produce as much as eighteen stones of pork, which will keep a small family supplied for several months.

[1] Those who lived on the hills, such as gamekeepers and shepherds, used the fat of the red deer, which was firmer, and made better candles than sheep's fat.

The family library is considerably more varied and extensive than was that in Grannie's cottage. The Bibles and the devotional books are still there, but in addition there are a number of books of general literature, and books of reference. There are also the father's music books, the mother's books of popular science, and the children's school books. One literary item there is which did not find its way to Grannie's cottage, and that is the *Perthshire Advertiser*, a local journal, which costs 4d. weekly, of which 3d. is required to cover the Government stamp duty.

If our visit to the cottage should happen to be paid on a Sabbath evening, we shall find the newspaper and secular books, as well as all signs of "worldly toil," laid carefully aside. The bairns are assembled with their parents for family worship, and the "big ha' Bible" is laid on the table. The father first gives out a Psalm in which all join, while he accompanies on the little harmonium. Then, after a few words of earnest prayer, he announces the chapter, which all take part in reading, verse and verse about. Such scenes, so touchingly portrayed by the national poet, were formerly of almost universal occurrence in Scottish rural homes, at any rate on Sabbath evenings, if not on other evenings as well.

CHAPTER V

AS RURAL POST-RUNNER

In 1858, one year after he had met with his accident, and when he had reached the age of nineteen, Charles Macintosh had once more to face the problem of choosing a calling, but now with a limited range of choice owing to his disablement. He selected one where that disablement would hardly interfere with his efficiency, and one, at the same time, which would give him a maximum of open-air exercise, and of opportunity for studying nature. This was the calling of rural postman, which, as we have seen, was almost a new institution following the granting of postal facilities in even remote country districts. It is true the pecuniary reward was not on an extravagant scale, but then, his tastes were simple, and his wants were few. He started at a salary of twelve shillings a week, which, during his thirty-two years' service, never rose above fourteen. At this time he stood

six feet two and a half inches in his stocking soles, and walked with a long quick step and steady swing, so that he easily covered an average of four miles an hour.

During the thirty-two years he remained in the postal service, his " beat " lay in that section of Strathtay from Dunkeld up to the point where the Tay and Tummel meet. For the first five years he went up the east or left bank of the river, and for the remaining twenty-seven up the west or right bank. During the former period he stayed in lodgings first at Tynreich, about half a mile beyond Ballinluig—now the junction for Aberfeldy on the Highland Railway—and then at the Milton of Tullymet, a little " clachan " on the Braes of Tullymet above Ballinluig. Near the Milton (or " mill town ") was the mansion house of Tullymet, the home of a famous soldier, Sir Robert Dick, of the Black Watch, who distinguished himself under Wellington in the Peninsular War and at Waterloo, and also in the Third Sikh War under Lord Gough, where he was killed about a dozen years before Charles went to the district.

Starting from the Milton about six o'clock in the morning, the new post-runner would make his way down Strathtay by the villages and clachans of Ballinluig, Kilmorich, Kindallachan

and Dowally, and then enter a beautifully wooded stretch of road until Polney Loch was reached, after which the road swept round the entrance to the Duke's Grounds, and the ancient city of Dunkeld came into view. Over the whole of this route the scenery is strikingly beautiful. The river winds from side to side of its broad, flat valley-floor, from which the hills rise steeply on either side, while the mountain tops of Ben Vrachie and Ben-y-Gloe dominate the landscape to the North. What adds both to the picturesqueness and the geological interest of this section of the Strath is the series of old river terraces which can still be traced on both sides of the valley, sometimes forming grass-covered ramparts encroaching on the sides of the hills to a height of eighty or a hundred feet, sometimes occurring as bluffs crowned with Scots Pines. These terraces, as we shall see later, were features in which Charles took a special interest, as indeed he did in all the geological features he met with on his rounds, such as the rock-cuttings newly made for the construction of the Highland Railway.

But the interest of his round was not scientific only. It was intensely human as well. In those days, when means of communication were few, "Postie" was the friend and confidant

of all the countryside. When his knock came to the cottage door, his advice and assistance were sought on many subjects, and many were the commissions he was asked to execute. One day he would be asked to send the doctor for an urgent case, another day he would be entrusted with the guid-wife's "siller," to bank in town, or to pay accounts with; while sometimes his messages were of an even more confidential and delicate nature. Another important function of the rural post-runner of a past generation, when newspapers were expensive and scarce commodities, was to act as the bearer of public tidings of importance. In remote country districts, before the days of the rural postman, the parish minister has been known to continue offering up prayers for his Sovereign's health long after the latter had been laid in his grave. Charles's brother James, who was also a rural postman, remembers taking round his beat such items of news as the Tay Bridge disaster, the outbreak of the Franco-Prussian War, etc. Charles himself in speaking of his duties makes the following comment: "In my delivery I fancy my experience is much the same as other postmen. Some customers were always expecting letters which never came, and for which I was held to blame. Others were always

mighty curious as to the contents of other people's letters—a remarkable trait in the character of folk usually quite honest in other matters."[1] This remark shows a shrewd insight into the frailty of human nature.

Charles's duty on his outward journey from Milton of Tullymet down to Dunkeld, was to collect letters for the post, either by blowing his whistle to warn the people of his approach, when they would run out from their houses to meet him, or else by taking the letters out of primitive little letter-boxes fixed to a fence, gate-post, or tree, by the wayside, where a farm or cottage stood at some distance from the main road. The very existence of these little open receptacles was a silent testimony to the honesty of the Highland folk, for they were seldom or never tampered with. When he reached Dunkeld, he had to deliver up his burden, and then get the mail which had arrived by train from the South, for delivery on his homeward journey. In those early days of railway management, however, schedule times for the arrival and departure of trains were only approximate, within wide limits, so that it was sometimes quite late at night before Charles could start on his northward journey again. In that case

[1] *Chambers's Journal*, July, 1907, page 450.

it would be the small hours of the morning before he reached his lodging in Milton of Tullymet once more, and pitch-dark, if it happened to be winter-time and the moon not visible. When he did reach home, he would have covered fully twenty miles on the double journey, and that over roads which would be considered hardly passable nowadays. This he did every day of the week, except Sundays, and all the year round, summer and winter, in fine weather and foul. Often he must have been drenched to the skin, when blasts of wind and rain swept down the Strath from the mountains, and he seldom had an opportunity of drying his clothes or his boots. At that time the Post Office authorities did not supply their postmen with uniforms, and he would not carry a greatcoat, even in winter, as it was too hot to walk in for so many hours. The mention of postmen's uniforms recalls a significant circumstance which has been recorded by Mr. Edward Bennett, the official compiler of *The Post Office and its Story*, issued in 1912. "A curious physiological fact," he says, "has been discovered by the clothiers of the Post Office Department. The further North one goes, the bigger become the heads of His Majesty's postmen." The writer does not say whether he himself is an Englishman or a Scotsman! In any case it cannot be a

case of "swelled head," for the Scottish rural postman is proverbially a modest man. Some years later, a grey uniform coat was introduced, together with a round felt hat, with a metal badge in front; but the latter was such an unbecoming headgear that Charles, exercising his Scotch independence, refused to wear it.

At the time that we are now speaking of there was no parcels post, no postal telegraphs, no postcards, no halfpenny postage for newspapers, and no Post Office Savings Banks. The postman's duty, therefore, was almost confined to the carrying of letters, and sometimes there were not very many of these. The common "Queen's Head," or dull red penny stamp, was almost the only adhesive stamp in general use. At that time the rural postman's burden was comparatively light, but it gradually got heavier and bulkier as the various postal reforms were introduced. In 1870 all telegraphic business was taken over by the Post Office, and postcards came into use. In 1871 the postage on newspapers was reduced to a halfpenny. In 1882 the Parcels Post commenced. As these additional duties were imposed, one after the other, the postman's time became more fully occupied, and there was the less to spare for chats by the wayside, and errands for the country folk, so that "Postie" gradually became

less of a character and a confidant. Charles Macintosh, however, like some more of the older generation of his colleagues, including his younger brother, remained the trusted friend of his "customers" to the end.

Regarding the botanical observations which he made in the course of his rounds, he speaks as follows in the article from which I have already quoted: "My daily walks were much enlivened by my study of botany, while, out of hours, in the same pursuit, I have often committed 'trespass,' but generally without much rebuke. Once, however, up comes a keeper-lad, and says he, 'What are ye daein' here?' 'Botanising,' says I. 'Boter-what?' says he, 'Is yon a Latin name for trespassin? for that's what ye're daein'!' We Macintoshes of Inver have been precentors in Little Dunkeld church for three generations, so that [if the 'keeper-lad' had had his way] one of us might have been 'hangit,' as the precentor was when the meenister was drooned, the steeple dinged doon, and the bell drucket."[1]

[1] The allusion here is to the following well-known old local rhyme, but the precentor and the minister have been inadvertently transposed:—

"O, what a parish, what a terrible parish;
O, what a parish is Little Dunkel'!
They have hangit the meenister, drooned the precentor,
Dung doun the steeple, and drucken the bell."

Another source of occasional trouble with the gamekeepers was his little rough-haired black Scotch terrier, "Cailleach" (Gaelic for "auld wife"), who was his inseparable companion in after years. A more faithful and wise companion a lonely man never had, and if, following the instincts of nature, she did occasionally bring home a rabbit for her master's supper, who shall blame her over-much?

In 1863, when Charles Macintosh was twenty-four years of age, the Highland Railway was opened all the way from Perth to Inverness, and in the same year his beat was changed from the east to the west side of the Strath. He was now able to live at home in Inver, instead of having to take lodgings at the extremity of his beat, which was of great advantage, both to his comfort and to his pocket. The distance, also, was not quite so great, the total for the round, including the walk from Inver to Dunkeld and back, being about sixteen miles. Starting from Inver in the morning, he first went to Dunkeld Post Office to get the morning's mails. Then, starting back, he would call at Little Dunkeld Manse and the adjoining houses, before reaching Inver again. After he had distributed the few letters for his native village, he would

leave Strathbraan behind him, and proceed up the Strathtay road, round the foot of Craig Vinean, and on by Inchmagranachan and Dalmarnock to Dalguise. From the village of Dalguise he proceeded to Kincraigie, and then to Kinnaird House, which was his turning-point. Here he remained for an hour or two, taking shelter in the greenhouses if it happened to be wet, and then started on his homeward journey. This interval not only afforded him an opportunity for a rest, but it gave his "customers" time to write replies to the letters they had received in the morning, and these replies he collected on his return journey down the Strath in the afternoon. As evidence of the high esteem in which he was held by the people of the Strath, it should be mentioned that after he had been on the road for fourteen years they clubbed together and presented him with a gold watch, which is now a treasured heirloom in his brother's family, and bears the following inscription: "Presented to Mr. C. Macintosh by the inhabitants of the Dalguise Postal District as an acknowledgment of his faithful services as postman. Sept. 1877." The presentation was made at a special entertainment and gathering at Dalguise, amid the greatest enthusiasm. His brother James's String Band

was present to enliven the proceedings, and dancing was kept up till a late hour.

On his round he met with all sorts and conditions of people. There was one worthy old lady who occupied a small house by the wayside, and who had never travelled beyond the limits of the Strath. Her notions of distant parts were therefore somewhat restricted, and she imagined that London might be a city at least as large as Dunkeld. So when her son was starting for the metropolis to make his fortune—like other Scotsmen—she enjoined him to "remember her to a' the fowk!"

At the other end of the social scale were the Steuarts of Dalguise, who lived at Dalguise House. They were one of the oldest Perthshire families, having been descended from King Robert II. They were closely connected with the Oliphants of Gask, and were on intimate terms with the greatest representative of that house, the Baroness Nairne, the "Flower of Strathearn," who rivalled Burns as a song-writer. Few lyrics can compare with "The Land o' the Leal" and "The Auld Hoose" for beauty and tenderness. The Steuarts, like the Oliphants, were keen Jacobites, and many relics of Jacobite times were treasured in Dalguise House. Charles always received a welcome from the

Laird in passing, and was often asked in for a chat.

On this side of the river, as on the other, he never ceased making natural history observations in the course of his rounds, and collecting specimens. At night he would bring home a "poochfu' o' weeds," to be dissected and examined under the microscope at leisure. The rocks and minerals, too, were carefully examined, and anything unusual brought home for further inspection. Another subject in which he was deeply interested was the activity of the river, in building up its terraces and haughlands and shifting its course from side to side of the valley. As we shall see later, he kept careful notes of all abnormal levels of the river, both in times of flood and of drought, and many of these records he afterwards published in the *Transactions of the Perthshire Society of Natural Science.*

We have already seen what a rural post-runner had to suffer from exposure to all kinds of weather. As Charles advanced towards middle life, this told on his constitution more and more, and he was several times laid up with severe attacks of pleurisy, the result of drenchings received on his rounds. These attacks reached a crisis in 1890, when he had reached the age of fifty-one, and he decided to retire from the

postal service. At that time he had been constantly on the road for thirty-two years, during which he had covered a distance of fully two hundred thousand miles on foot, or the equivalent of eight times round the globe. For these services he received a salary which averaged something less than thirty-five pounds a year. It would be interesting to know how much of that sum he had to expend in replacing the shoe-leather worn out during these long tramps over rough roads. When he retired he received from a grateful country a service pension of ten shillings a week, which was practically all he had to live on during the next thirty years.

Having seen Charles finish his last round as rural postman, we have now to turn back and note one or two events which happened while he was on the road.

In 1867 his father, Charles McIntosh the Second, died in the cottage at the braehead, in Inver, at the age of seventy. He was a man of a retiring disposition, but considerable force of character. He had a fine presence, and was able to hold his own in any company in which he found himself. In *The Thrieplands of Fingask*, by Robert Chambers, there is an interesting account of a visit which Charles

McIntosh, senior, paid to a shooting party at Logierait in the forties of last century. The following sentences from this account are worth quoting: "My host had engaged the attendance of a clever violinist, Charles McIntosh of Inver, and of Peter Murray, a worthy old violoncellist from the same place, that reels and strathspeys might not be wanting to cheer himself and his people after the fatigues of the day. Favoured by these two performers, we had a rustic dance in the cool of the evening upon the raft-like boat moored at the neighbouring ferry across the Tay, where a party of the villagers gladly exhibited their skill in that ultra-merry saltation peculiar to grave Scotland." "Next day on the moor," he says, "another new figure was honest Charles with his fiddle, whose strains from time to time lent us fresh animation as we paced along the rough slope. . . . On, on we go, till at length human strength can do no more, and we are all forced into an admiration of Sir Robert Dick's house, whether we will or no—Charley meanwhile regaling us with the very tune referring to the district we are regarding, the 'Braes of Tullymet.'" But Charles's musical talent was not confined to the violin, for Dr. Chambers continues, after an account of the *al fresco* luncheon on the moor: "At length,

eating being done, we had recourse to our friend Charley for a song, and presently he filled the clear air with 'Cam ye by Athole braes?' after which succeeded another, equally appropriate, 'The Braes of Balquhidder.'" There is still in existence a letter from Sir Patrick Murray Thriepland, fifth baronet of Fingask, to Charles McIntosh, inviting him to come to Fingask Castle, in the Carse of Gowrie, and give them what he calls a "spring," which is an old Scotch term for a dance. The letter, which is dated December 25, 1841, is worth quoting for the light it throws on old-world social customs. Sir Patrick says: "Sir, My ladies and myself are very anxious to hear your playing again, and as there are one or two young people to be with us on Friday, the 31st inst., I wish you would come down and give us a spring on that day. Your best way would be to come down by the Dunkeld coach to Perth on Thursday morning, and you would get out by a coach which leaves Perth at quarter before one o'clock. Of course I shall pay all your expenses going and returning." It was evidently a day's journey to get from Dunkeld to the Carse in those days!

The next incident we come to is the General Election of 1868, when the Disestablishment of the Irish Church was the burning question,

and Mr. Gladstone formed his second administration. The contest for Perthshire was between Sir William Stirling Maxwell, of Keir, who had occupied the seat for sixteen years, and Mr. Charles Stuart Parker, of Fairlie, who afterwards sat for Perth city, and was the biographer of Sir Robert Peel. This was the last General Election conducted by open voting, before the passing of the Ballot Act, and was the occasion of great excitement and amusement, especially amongst the younger portion of the community. Charles Macintosh (the Third) and his brother James, who were always staunch Liberals, took a keen interest in the fight, as supporters of Mr. Parker. The Liberal headquarters for the district were in Fisher's Hotel, Dunkeld, and as there was no postal telegraph service in those days, men on horseback were employed all day riding between the hotel in Dunkeld and the railway station in Birnam, where messages were received and dispatched over the Company's wires. Every hour news of the state of the poll was wired from Perth station to Birnam station, and carried thence to Dunkeld by the riders, while the state of the local poll was transmitted to Perth in like manner. In this way the excitement was kept at fever heat all day, instead of being crowded into one hour at night as it is

now. At the headquarters of both parties bags of flour and of yellow ochre were freely used to bespatter the voters as they entered and left the polling booths, while the Lairds were out in full strength to "encourage" their tenants to vote for the candidate they favoured. One dour old crofter, who was being urged to vote Tory, replied, "Na, na, I've been a Whig a' ma days, an a'm no' goin' tae change noo!" At the end of the day, Mr. Parker—whose Jacobite prænomen no doubt commended him to the Highlanders—was declared the duly elected representative of the County, to the great delight of the Macintoshes and their fellow-workers.

The next excitement which ruffled the surface of the village life was the agitation for the abolition of the pontage on Dunkeld Bridge. The struggle was very fierce while it lasted, and left bitter memories which it took a generation to obliterate. The bridge, which had been built partly at the expense of the Duke of Atholl, partly by a grant from the Commissioners of Highland Roads and Bridges, and partly by a loan raised under a special Act of Parliament, was commenced in 1805, opened for traffic in 1808, and completed in 1809. In order to meet the interest and sinking fund on these advances a toll of one halfpenny was levied on every

foot-passenger using the bridge; that is to say, every person going from Birnam to Dunkeld and back, or *vice versa*, for either "kirk or market," or any other purpose, had to pay one penny on the double journey. This was felt to be specially burdensome after the Free Church was built at Dunkeld,[1] and representations were made craving that those using the bridge on Sundays for the purpose of attending church should be exempted from the toll, but this request was not granted. This refusal served to fan the flame of discontent, which reached its height in 1868. Two or three times during that year, the mob, led by Robertson, of Dundonachie, took the law into their own hands and smashed the toll-gates and notice boards and threw them over into the Tay. So menacing did the situation become that a company of the Black Watch had to be stationed in the town for some time. There may have been some excuse for these lawless proceedings on the part of people who, rightly or wrongly, thought they had a legitimate grievance, but there cer-

[1] The foundation-stone of the new Free Church at Dunkeld was laid, in 1874, by the Earl of Dalhousie, who, as Fox Maule, had given the site for the first church. James Macintosh's Flute Band played on the occasion of the Masonic Ceremony. The new church was opened in the following year by the Rev. Dr. Duff, the great Indian missionary, a native of the village of Moulin, near Pitlochry, a little further up the vale of Atholl.

tainly was no excuse for the wanton act of destruction which was committed in the following year, when the beautiful hermitage at the Falls of the Braan, with mirrors reflecting the Falls from every angle, was blown up with gunpowder. With this act, whatever may have been their opinion on the question of the pontage, the Macintoshes can have had no sympathy, for the Hermitage Fall and all its surroundings, being so near to their own home, was to them a constant source of pride and pleasure. It was not until 1879, after long years of expensive and irritating litigation, that the bridge was finally taken over by the County Authority, under the Roads and Bridges Act, the pontage abolished, and the bridge thrown open free to the public.

In 1876 a new City Hall was erected in Dunkeld, and in the following year a bazaar was held for the purpose of raising funds to complete the cost. At this bazaar, Charles and his brother James were present with their String Band, to provide part of the entertainment, and their Uncle James, the owner of the lost snuff-mull, then an old man of eighty-six, also took a place in the Band for that occasion. It so happened that the Duchess Dowager of Atholl was present, and heard them play, and also the

Marquis of Tullibardine, her grandson, then a little boy six years of age, now the eighth Duke of Atholl. After the bazaar was over, the Duchess Dowager said to her grandson, who was staying with her at St. Adamnan's Cottage: "What a pity you did not shake hands with old James McIntosh, for he was taught the violin when a boy by Neil Gow, and Neil Gow played before Prince Charlie, when the Prince was entertained by a former Marquis of Tullibardine, so that would have been a link with the '45."[1]

Charles and James Macintosh frequently played at St. Adamnan's Cottage before the Duchess Dowager, and were always graciously received by her. They also played on several occasions at Blair Castle, on the invitation of the late Duke and Duchess of Atholl. One of these occasions was when the Prince and Princess of Wales, afterwards King Edward VII and Queen Alexandra, were guests at the castle. On yet another occasion they were playing at a ball in the castle, at which the Marquis of Tullibardine and his cousin, now the Earl of Dudley, were present, but were both quite small children. First the one and then the other took up the unwieldy

[1] Neil Gow was born in 1727 and died in 1807, in his 80th year, while James McIntosh was born in 1791, and died in 1879, in his 87th year, so that their joint lives stretched over a period of 152 years, equal to fully five generations of thirty years each.

bow of the big double bass fiddle, and tried to manipulate it as they had seen Charles do, but it was beyond the compass of their strength. James then suggested that they should take an end each, and work it as two woodmen might a cross-cut saw. This they did with complete success, and to the great delight of themselves, if not of the company in general!

CHAPTER VI

LATER YEARS

It will be remembered that Charles Macintosh retired from the postal service in 1890, when he had reached the age of fifty-one. He had still several years to serve before reaching the age-limit, but repeated attacks of pleurisy warned him that he could not continue in a calling which exposed him to all conditions of weather, without serious danger to his health. It was well that he came to this decision when he did, for, with care, his life was prolonged for another thirty-one years of contented happiness, and of usefulness to others. His leisure never for one moment hung heavily on his hand. His interests were many and absorbing, and yet his life was free from any tinge of selfishness, for these interests he was always keen to share with others.

In 1896, a few years after his retiral, his mother died, at the advanced age of ninety-one. This was a great grief to Charles, and left an irre-

Photo by A. F. Mackenzie.

CHARLES MACINTOSH'S MOTHER.

parable blank in his life. For more than half a century she had been his constant companion, following with sympathetic interest all his scientific pursuits and discoveries. His brother James had married three years previously, and gone to reside in Dunkeld, and his sister was manageress of the Ben Wyvis Hotel in Strathpeffer,[1] so that Charles was now left entirely alone in the little house at the braehead in Inver.[2]

Mrs. McIntosh was in many ways a remarkable woman. We have already seen how she was descended from the Chiefs of the Macdonalds of Glencoe and the Camerons of Lochiel, and her character did not belie her ancestry. She was of a deeply religious cast of mind, and had been brought up as a convinced Seceder. During her long life in Inver, she was looked on as the mother of the village, taking a burden both of their spiritual and their physical welfare. She was present on every occasion of joy or of sorrow to "rejoice with them that do rejoice, and weep with them that weep." If any were sick or in distress she was sure to be sent for, and often

[1] After Miss Mary Ann Macintosh had occupied this post for twenty years, she retired and went to live in Inverness, where she died in 1917, at the age of seventy-six.

[2] Thomas Cameron Macintosh, Charles's other brother, had married and gone to live in Edinburgh, where he entered the postal service. He died there in 1878, at the early age of thirty-five.

she might be seen making her way to some neighbour's cottage, carrying with her, mayhap, some simple remedy grown in her own garden. Or, if the dark angel had entered the dwelling, she was there to mingle her tears with those of the sorrowing ones. Even yet, those in the district who knew her, speak of her with the utmost affection and respect. She was not only a " mother in Israel," but she represented the best type of the Highland lady of the old school, and that is perhaps the highest praise we can give her. She had received a good education, and put her accomplishments to use by acting as village scribe. During the Crimean War, and the Indian Mutiny, which lasted from 1854 to 1857, her services in this capacity were frequently requisitioned by the wives and mothers and sweethearts of the lads from the Strath who were away fighting their country's battles in the Highland regiments, which distinguished themselves so greatly, especially in the Indian Mutiny, under Havelock and Outram. One can picture the " Lady of the Lamp " sitting by the bedside of some " lad from the glen," in the Scutari Hospital, reading to him some tender message which had been penned by Mrs. McIntosh in the sheiling on the hillside in far-off Scotland.

The *Ross-shire Journal* of September 11, 1896, commenting on the death of Mrs. McIntosh, whom it describes as the " Worthy old Lady of Inver," recorded the following interesting facts regarding her career : " Had she lived to December, she would have completed her ninety-second year, and was in full possession of all her faculties, being able to superintend her household affairs. Her death was somewhat unexpected, as she had only been complaining for a few days. Her memory was remarkable, both of past and present events. She was born near Murthly, and often used to tell how she had seen and known four baronets of that estate. She also remembered the building of Dunkeld Bridge, in 1809. For years she had discarded spectacles, as she had received her second sight. It failed, and then she received her third, and was able, up to the date of her death, to read small print and to knit." The *Weekly Scotsman* wrote of her in the same strain. It said, " She reigned like a queen in the remote hamlet where she resided, and was revered and beloved by all who knew her. The blood of the proud but hapless Macdonalds of Glencoe flowed in her veins. . . . Not only did there burn much of the old fire of her ancestors in this worthy lady, but it has manifested itself in the high talent

and noble Christian enthusiasm of her brother, Mr. James Cameron, one of the most distinguished missionaries to Madagascar. This talent and zeal descended to his family, who have done their work well and honourably in the world. Nor has Mary Cameron's influence disappeared with herself. She survives in many hearts and lives. Not only has she led her own family to honour, but from one of the most secluded nooks of that lovely valley where she lived in peace and quietness, year in and year out, for nearly a century, a silent and holy influence has gone forth from her pure life."

During his later years, Charles Macintosh was closely associated, in his scientific work, with the Perthshire Society of Natural Science. That society was founded in 1867 for the purpose of promoting the study of natural science generally, and the natural history of the county more particularly. These objects it has carried out by means of meetings held during the winter months, and excursions in summer; by the formation of a library and museum; and by the publication of *Transactions and Proceedings*, and other memoirs. The museum, which has now been handed over to the municipal authority of the city, contains a nearly complete repre

Photo by Magnus Jackson.

DR. F. BUCHANAN WHITE, F.L.S., THE FOUNDER OF THE PERTHSHIRE SOCIETY OF NATURAL SCIENCE.

Photo by W. H. Smith, London.

THE PERTHSHIRE NATURAL HISTORY MUSEUM, TAY STREET, PERTH.

sentation of the Zoology (vertebrate and invertebrate animals), Botany (flowering plants and cryptogams), and Geology (rocks, minerals and fossils), of the county; and it has been acknowledged to be the most perfectly organized regional museum in the country. The publications of the Society embrace fourteen volumes of *Transactions and Proceedings*, a *Flora of Perthshire*, portions of a *Fauna of Perthshire*, *Regional Maps of the County*, *Panorama of the Mountains*, *Descriptive Guides to the Museum*, and *Natural History of the Banks of the Tay*, etc. In addition to these, the well-known journal, the *Scottish Naturalist*, was started by the society in 1871, and carried on by it for three years. Since then it has been published independently, and is still the leading journal of Scottish Natural History. The founders and pioneers of the Society included the names of such well-known naturalists as Dr. F. Buchanan White, F.L.S., F.E.S., botanist; Sir Thomas Moncreiffe, Bart., of Moncreiffe, entomologist; Colonel H. M. Drummond-Hay, of Seggieden, C.M.Z.S., ornithologist; and, a little later, Professor James Geikie, LL.D., F.R.S., geologist; with many more of lesser note. All of these and almost all their fellow-labourers are now no more. The leader of the band, and, indeed, the real

founder of the Society, was the first-named of the above—Dr. Buchanan White. He was a fully qualified physician, and the son of one of the leading practitioners in the city of Perth, but he devoted the whole of his life to the study of natural science, and especially the investigation of the fauna and flora of Perthshire.

It so happened that when Dr. White was a young man he went to reside at Birnam for a year, from the spring of 1872 to the spring of 1873. During that period he made the acquaintance of Charles Macintosh, and a friendship sprang up between the two naturalists which lasted till the doctor's death in 1894, some twenty years later. When Macintosh first met Dr. White, in 1872, the former was in his thirty-fourth year, and was engaged as post-runner on the Dalguise route. He had been a careful observer of Nature for a number of years, but his studies were somewhat desultory, and he was hampered by the want of works of reference. All this was changed, however, after he met the doctor. The latter was able to direct his energies into lines of systematic study and to give him just that encouragement which he needed, and which only a kindred spirit could give. He also assisted him to acquire the necessary books and apparatus. What the par-

ticular lines of investigation were which he advised him to take up, we shall see in subsequent chapters, when we come to consider Macintosh's scientific work in detail.

During the year that Dr. White remained at Birnam, his stalwart figure became a familiar sight in the Dunkeld district, as he stalked over the hills and moors, and through the glens and woods, clad in his brown tweed kilt-suit, his Inverness cape, Balmoral bonnet and brogues, and with his capacious vasculum slung over his shoulder. His pockets would be filled with boxes and bottles for collecting insects and shells, while in his hand he carried a stout stick, which served the double purpose of walking-stick and handle for his butterfly-net. In the evenings he would frequently wend his way to Charlie Macintosh's cottage in Inver, where the two would turn out their treasures and compare notes on the day's "take." Charlie's receptacle was usually an old fishing basket, but sometimes his capacious pockets served the purpose instead. The specimens were those he had picked up in the course of his postal round, when his quick eye frequently detected rarities by the wayside, or in the adjoining fields and woods, and Dr. White frequently expressed amazement at the richness of the collection. At

the same time he would suggest fields of research, or ask Macintosh to assist him by collecting specimens representing certain groups which he, the doctor, happened to be investigating at the time.

When Dr. Buchanan White left Birnam and went to reside at Perth, a correspondence commenced between him and Macintosh which lasted till failing health compelled the doctor to give up all literary and scientific work, within about a year of his death. Most of this correspondence has been preserved, and it is on it that we have to rely chiefly for our knowledge of Macintosh's scientific labours during these years. In May, 1873, Charles was elected an Associate of the Perthshire Society of Natural Science, on the nomination of Dr. White, an honour which was reserved for those who had done signal service to the cause of natural history in the district. This honour he valued very highly, and retained for nearly fifty years. In return he contributed to the prosperity and usefulness of the Society in every way he could, by preparing Papers and Notes, which were read at the winter meetings, and afterwards published in the *Transactions and Proceedings*;[1]

[1] A list of these Papers and Notes is printed as an Appendix to the present volume.

by attending and guiding the summer excursions when they happened to be to places in his district; and by collecting and mounting specimens for the museum. His contributions to the latter enriched several sections, but chiefly those of the Botanical Department. The Herbarium of dried flowering plants contains a large number of specimens which were collected by him, and the collections of fungi contain even a larger proportion of his "finds."

Two notable scientific functions in which he took a prominent part were the "Fungus Shows" which were held at Perth and Dunkeld in the autumns of 1875 and 1877 respectively, under the auspices of the Cryptogamic Society of Scotland. The first of these was a specially memorable occasion, for it was the first gathering of the kind ever held in this country, and probably the most successful. Sir Thomas Moncreiffe acted as president of the conference, and Dr. Buchanan White as secretary, and distinguished botanists were present from all parts of the country, including such noted fungologists as the Rev. James Stevenson, of Glamis, the Rev. J. Fergusson, of Fern, Mr. Worthington G. Smith, F.L.S., London, Professor Ogilvie, and Professor George Dickie, of Aberdeen. The report of the conference makes special mention of the

rare species, one of them new to Britain, contributed by Mr. C. Macintosh, of Inver. One of the functions in connection with the conference was a banquet in the Salutation Hotel, at which some seventy gentlemen nobly hazarded their lives in the cause of science by partaking of a repast consisting almost entirely of a large variety of fungi, prepared by a chef brought specially from London for the purpose. The menu, which has been preserved, provides amusing reading. It is as follows :—

Stewed Pigeons, with Chantarells. Curried Fungi.
Dressed Calf's Head, with Fungi. Turkeys stuffed with Truffles.
Cavaliers Broil. Fistulina hepatica à l'Anglaise.
Hydnum repandum à la President.
Cantharellus cibarius à la M. Worthington Smith.
Hydnum imbricatum à la Militaire.
Boletus edulis à la Dhonuil Dhu.
Agaricus rubescens à la Grevillea.
Polyporus intybaceus à la M. M. les Cures.
Boletus scaber à la Société Cryptogamique.
Marasmius oreades à la Reine des Fées.
Sparassis crispa à la Scottish Naturalist.

The intelligent reader does not need to be reminded that the above are the names of more or less—especially less—well-known edible fungi, followed by the names of their botanical sponsors.

The present writer, although he was present at the banquet, does not recollect any dire results following, so it may be presumed that the species chosen for experimentation really were all edible.

The Fungus Show at Dunkeld which followed two years later, in October, 1877, was on a much more modest scale. The Rev. J. Stevenson, of Glamis, was president, Dr. Buchanan White again acted as secretary, and Mr. John Duff, banker, Dunkeld, was the local organizer. The show was held in the old Masonic Hall, now part of the Royal Hotel, and both Charles Macintosh and his brother James took an active part in the proceedings, contributing a large number of interesting specimens. Some of the rarest of these came from the woods around the Hermitage Falls and Rumbling Bridge, near Inver, which have always proved a rich hunting-ground for the fungologist, as well as for the naturalist generally.

Of the excursions in which Mr. Macintosh took part, the first was on August 12, 1899, when a party of members of the Perthshire Society of Natural Science visited Birnam Glen.[1] On that occasion Mr. James Menzies, one of the leading botanists of the Society, was present,

[1] A list of the Fungi got during this excursion will be found in the *Proceedings of the Perthshire Society of Natural Science*, Vol. III, page xlix.

and met Charles Macintosh for the first time. This was the beginning of a friendship which ripened year by year until Macintosh's death, more than a score of years later. During these years Mr. Menzies filled the rôle of "guide, philosopher, and friend," which Dr. White had filled for a similar period previously.

Charles Macintosh was a delightful companion on a natural history ramble, whether official or unofficial. Nothing escaped his notice, and he was eager to communicate to his companions the results of his observations. His childlike enthusiasm was infectious, and one could not help being carried away by his love of the beautiful and the wonderful in Nature. Especially was this the case when the company was composed chiefly of young people. The writer remembers very well one such occasion, when Charles acted as leader of the first excursion of of the Junior Section of the Perthshire Society of Natural Science, an offshoot from the parent Society which had a most successful career for a number of years.[1] This excursion, which took place on July 9, 1904, was also to Birnam Glen, an ideal locale for such an expedition, with its

[1] Some of the earlier members of the "Junior Section" are now amongst the most active members of the parent Society. Others, alas! including some who appear in the accompanying group, made the "Great Sacrifice" in the recent War.

Photo by the Author.

CHARLES MACINTOSH AT THE EXCURSION OF THE PERTHSHIRE SOCIETY OF NATURAL SCIENCE TO BIRNAM GLEN, AUGUST 12, 1899.

Photo by A. Folkarde.

CHARLES MACINTOSH AT THE EXCURSION OF THE JUNIOR SECTION OF THE PERTHSHIRE SOCIETY OF NATURAL SCIENCE TO BIRNAM GLEN, JULY 9, 1904.

shady recesses, its moss-covered rocks, its birch and pine woods, and the wide moor stretching away from its upper extremity.

In July, 1903, The Photographic Convention of the United Kingdom held its annual gathering in Perth for the first time, under the presidency of the late Sir Robert Pullar, when excursions were arranged to several spots of noted beauty around the city. One of these was to the summit of Birnam Hill, when Charles Macintosh acted as local leader and guide. He took great delight in pointing out to the visitors from beyond the border the unrivalled views to be got from the top of the hill, both southwards, over Strathmore to the Sidlaws and Ochils, and northwards, over Strathtay to the peaks of the Grampians.

The next important scientific excursion that Charles Macintosh attended was in connection with the visit of the International Phyto-Geographical Association to this country, in August, 1911. The party, which included specialists from Sweden, Denmark, Belgium, Switzerland, Germany, and America, and was accompanied by such eminent British Botanists as Dr. W. G. Smith, of Edinburgh, Mr. Claridge Druce, of Oxford, Dr. Moss, of Cambridge, and others, first visited Perth, and examined the botanical collections in the

museum, which they highly appreciated. They then went on to Dunkeld, where they were joined by Mr. Macintosh, and visited the remains of the "Parent Larches," which have already been described. On the following day they went to Butterstone Loch, and the Loch of the Lowes, two of the chain of post-glacial lochs between Dunkeld and Blairgowrie, and here Mr. Macintosh again joined them. These lochs contain a rich aquatic flora, and many interesting plants were observed, special attention being paid to the "Plant Associations" of the region, that is, the association of certain species of plants with certain other species.[1]

The last scientific expedition in which he took part was an excursion of the Scottish Aboricultural Society to the Hermitage Falls in September, 1921. He was now well over the fourscore years, and his strength was not what it had been, although his powers of observation were as keen as ever. As it proved, this was his last visit to a spot he knew and loved so well, and indeed it was his last country ramble.

During his later years he took up the study

[1] An account of this excursion was given by Mr. William Barclay, the President of the Perthshire Society of Natural Science, in his opening Presidential Address to that Society on November 11, 1911, in which he refers to Mr. Macintosh as "our veteran member." The address is printed in the *Proceedings of the Society*, Vol. V, page cxl.

Photo by Professor Massart, Brussels.

CHARLES MACINTOSH AT THE EXCURSION OF THE INTERNATIONAL PHYTOGEOGRAPHICAL ASSOCIATION TO THE PARENT LARCHES, DUNKELD, AUGUST 13, 1911.

of various branches of natural history in turn, with what results we shall see in subsequent chapters. After he made the acquaintance of Mr. Menzies, in 1899, he took up the study of some of the less conspicuous groups of fungi. In 1904 we find him working up the slugs and snails of his district, in response to an appeal from the recorder of the Conchological Society. A year later it is the birds that take up his special attention, in order to collect data for Mr. Harvie-Brown, who was then preparing his work on the *Fauna of the Tay Basin and Strathmore*. In 1898 he paid a visit to his sister at Strathpeffer, taking with him his sketch book, and Berkeley's *British Fungologist*, of both of which he made good use, as evidenced by the drawings in the former and the marginal notes in the latter. This is the only record of any visit which he paid beyond the boundaries of his native county, with the exception of another visit which he paid to his sister after she had retired and gone to live in Inverness.

We have now reached the last phase in the life of our Perthshire Naturalist. We have just seen how he attended the excursion of the Arboricultural Society to the Hermitage Falls, in September, 1921. He really was not fit for

the exertion, for his heart had recently been showing signs of weakness, but he was determined to accompany and guide the party. Amongst those present were a number of students of the School of Forestry, who had been working in the district since the latter part of the War. One of these students accompanied Charles home to his house in Inver, and, seeing that something was seriously the matter with the master whom they all revered, he insisted on sending for the doctor. His brother James was also sent for, and that evening he was removed in a motor car to the latter's house in Dunkeld, in order that he might receive proper attention. When he arrived at his brother's house, he insisted, with his usual cheery independence, on trying to mount the stairs without assistance, but he collapsed before he reached the top. He was then put to bed and never rose again till the end came, some four months later. With characteristic shrinking from the ministration of strangers, he made his brother promise that he would himself wait on him during his last illness without calling in the services of a strange nurse. He remained cheerful during all his weeks of illness, and did not suffer much pain, but the weakness gradually increased. He never would admit to those about him that

he was dying, possibly to save them from needless distress, but he can hardly have been under any illusion himself as to what the issue would be. His minister, the Rev. C. M. Robertson, of Little Dunkeld, came to see him frequently, and his visits were always a source of pleasure and comfort. Up to the very end he manifested the keenest interest in the choir, the Sabbath school and other organizations of the Church. Sometimes, even when his mind seemed beyond the reach of thought, he would brighten up and enquire about some branch of the work in his old half-quizzical manner. On one occasion he had a visit from his old friend and pupil, Mr. Alexander Sim, formerly of Birnam, now become a famous violin player in Aberdeen. Mr. Sim brought his violin with him, and played some of his favourite old Highland melodies to the dying musician, including some of Charlie's own compositions. This gave him great delight, but the emotion was almost too much for him, and brought on a bad heart attack.

At the dawning of the new year, it became evident that the end was not far distant. He was unable to take nourishment, and his strength gradually ebbed. But even yet his spirit did not give way. He remained cheerful to the end, and did all he could not to cause trouble

or distress to those around him. At length the end came peacefully on the morning of Thursday, January 5, 1922, before he had quite completed his eighty-third year. The eager spirit of the enquirer after truth was at rest. For him the riddle of the Universe was solved.

Thus the lonely old naturalist, musician, and friend of all, died, not indeed in the cottage in which he had been born, and in which he had spent more than fourscore of useful and contented years, but surrounded by the loving ministrations of his like-minded brother and the latter's wife and son and daughter. We could not have wished for him a more peaceful end.

It was a bright winter's day, with a sprinkling of snow on the fields, and birds chirping in the bare hedgerows, when we laid our old friend to rest in the peaceful little God's-acre which surrounds the plain old whitewashed building where Charlie Macintosh had worshipped and served for so long—the Parish Church of Little Dunkeld. At the entrance to the churchyard we were met by all the school children of the district, from the Royal School, Dunkeld, and Torwood Public School, Birnam, assembled under their headmasters, Mr. Henry Crombie, M.A., and Mr. Charles A. Lunan, to do honour to the

Photo by A. F. Mackenzie.

LITTLE DUNKELD PARISH CHURCH AND CHURCHYARD, SHOWING NEIL GOW'S GRAVE.

Photo by the Author.

CHARLES MACINTOSH, WITH HIS LITTLE NEIGHBOURS, BY THE TAY AT INVER.

memory of one whom they both loved and revered. The ranks of these youthful but sincere mourners opened out as we approached the open grave, and the funeral cortège passed between them. The simple Presbyterian burial service was conducted by all the ministers of the district, both Established and United Free, and these also acted as pall-bearers along with the relatives and a few friends, including Mr. James Menzies, his fellow-naturalist.

Thus on January 9, 1922, with simple but solemn ceremonial, were laid to rest the mortal remains of one the remembrance of whom will long remain green in the Strath he loved so well. He lies amid the amphitheatre of hills whose beauty changes with every hour of the day and every season of the year; within sound of the distant cathedral bell, and the rushing Tay, but a field's-breadth away; and amid the graves of the forebears of the Strath, including that of his musical prototype, Neil Gow.

CHAPTER VII

CHARACTERISTICS

I CANNOT begin this chapter on the characteristics of Charles Macintosh's nature and life more appropriately than by quoting from a letter which I received from his minister, the Rev. Charles M. Robertson, M.A., of Little Dunkeld Parish Church, shortly after his death. Speaking of his old friend and parishioner, he says: "Charles Macintosh was fond of children, because at heart he was a child himself. His tastes and pleasures were simple; the eager enthusiasm of youth was his, and to the very end he was interested in life. Commenting on one of my sermons—as was his kindly habit—he said: 'I'm glad you think the world isn't getting worse.' Any acknowledgment of his work or gifts was received by him with simple unaffected pleasure. He was a very faithful member of Little Dunkeld Parish Church. Only illness kept him away from Divine Service. He

came out in all weathers, when consideration of health and age might well have kept him at home.

"His interest in church music survived long after he ceased to be conductor of psalmody. Right from the beginning of the opening voluntary, to the very end of the service, he followed every note of the music, his face often lit up with interest and delight. Our organist told me that she felt satisfied when she had earned some words of praise from him. To his great delight she sometimes played, as voluntaries, pieces composed by himself and copied out in MS.

"A visit to Charles Macintosh was always interesting. Inevitably the subject of music came up in the conversation. Occasionally he would produce his 'cello and play; more often I played his organ and his own music. Once, during his last illness, he requested me to play to him, and I am glad to remember how much he was cheered. The day before his death, when almost silent and much exhausted, he astonished his brother and myself by asking whether we had managed to secure a new organist. Never did I hear a word of complaint during his long, last illness. He took curiously detached interest in his symptoms, and, characteristically, read articles in the encyclo-

pædia dealing with his trouble. In the matter of personal religion he had all the traditional reticence of the Highlander. He impressed all who had the privilege of knowing him as a fine type of Christian—humble, believing, kindly, happy."

I am privileged also in being able to reproduce the following reminiscences by another and older friend, who is well qualified to speak of a rather earlier phase of Charles Macintosh's life. This is the Rev. Hugh S. Mackenzie, B.D., now Parish Minister of Stenton, near Prestonkirk, in East Lothian. Mr. Mackenzie is a son of the late Rev. J. S. Mackenzie, who was so long Minister of Little Dunkeld Parish Church. Having spent his early years in the Manse there, he knew Charles intimately. He writes as follows: "Charles Macintosh was one of the outstanding men of Little Dunkeld for two generations. He was a giant in stature, and he was great in character also. To those of us who knew him from our earliest days, he became a part of our life—a constant source of interest and of helpfulness.

"His big and kindly personality is bound up with my earliest recollections. I remember him first as the postman, who called at Little Dunkeld Manse each morning; and the children at the

Manse eagerly looked for his coming, as Robert Louis Stevenson, in his childhood in Edinburgh, watched from his window for 'Leerie the Lamplighter.' Except for a short time, when he used a tricycle, Charlie—as we affectionately called him—ministered to his long district between Dunkeld and Kinnaird entirely on foot. Many a wild tramp he must have had in winter, but in spring and summer, when the time of the singing of birds was come, and the flowers appeared on the earth, Charlie would not find his journey a weary one, for he had the seeing eye and the hearing ear, and every mile had many interests for him.

'Love had he found in huts, where poor men lie,
His daily teachers had been woods and rills,
The silence that is in the starry sky,
The sleep that is among the lonely hills.'

"One of Charlie's prominent characteristics was his love of children. He loved his fellows, and he was always at home among young people. I remember well how he used to gather some of the boys of his Sunday-school class to an open-air lesson on botany; and to their young minds he patiently unfolded the mystery of the structure of plants, explaining, with the aid of his pocket lens, what was meant by such terms as petal, sepal, stamen and pollen. As I

think of it now, I realize that, in order to benefit the children, he must have sacrificed many hours which he might reasonably have claimed for rest after his day's work.

"Charlie Macintosh was a born naturalist, and, had he enjoyed the educational advantages which are now offered to all, he would doubtless have risen to a high rank in the world of science. He knew the flora and the fauna of Central Perthshire as few others have known them; and, even in departments of natural science which, to the casual observer, are rather difficult and unattractive, he possessed the detailed knowledge of an expert. He had an accurate knowledge of the birds of the district. He knew their haunts, and watched for their coming year by year. I remember a pleasant ramble along the Tay one day in spring or early summer. Charlie had suggested that we look for the nest of the oyster-catcher, which then frequented a stretch of gravel by the side of the Tay opposite the farm of Inchmagranachan. The nest of the oyster-catcher is nothing more than a hollow in the ground, and the eggs are so similar in colour to the gravel that for long we searched for the nests without success. At last Charlie called out, 'I have found one.' I hastened to where he was standing, but even

then failed to detect a nest. Charlie was amused as he watched my vain search, till he said, 'See, where I am standing,' and there I saw two mottled eggs, exactly like two rounded pebbles.

"Music was in Charlie's soul, and it could not but find utterance. I well remember him as Precentor in Little Dunkeld Church. It must have been difficult for him to find room in the small precentor's box beneath the pulpit; and, when he stood up, his head touched the tassels of the pulpit-desk. When my father gave out the psalm, Charlie took out his tuning-fork, and, striking it on his knee, held it to his ear, and when he had caught the right key he stood up and raised the tune, beating time with his right hand, and sometimes by the movement of his psalm-book. Charlie Macintosh in the precentor's box was a typical Scottish figure, and his portrait in that position would have been a striking illustration for a book on Scottish life and character. When an organ was introduced into Little Dunkeld Church Charlie sometimes acted as organist, and it was a constant wonder to watch how he manipulated the bass notes with his maimed hand.

"It was not known to many that, in addition to all his other accomplishments, Charlie Macin-

tosh had a good knowledge of general literature. He was fond of quoting from Wordsworth, and he was an admirer of Macpherson's 'Ossian.' The poetry of hill and glen and mist and stream stirred a responsive chord in his heart. It is many years now since he advised me to read the *Life of Macaulay*, and Carlyle was another favourite author of his. Some years ago an old friend came upon him one day on Inver Bridge, deeply absorbed in a book. It was a German treatise on edible fungi, and Charlie had succeeded in learning sufficient German to enable him to read such books.

"Those who knew Charles Macintosh best thought that his many gifts deserved formal recognition, and that an honorary degree from one of the universities would have been no more than his natural gifts and scientific attainments merited. But Charlie himself never thought of such things, for he was of an unworldly and humble cast of mind. In manner he was sometimes abrupt, and consequently he was occasionally misunderstood and misjudged; but those who really knew him recognized that he was kindly and unselfish, and ungrudging in the service of others. He had the sincerity and outspokenness of a simple, strong character; and he was one of the staunchest of friends.

"Charlie Macintosh was shy to speak of religion, but he took an active interest in the church of his parish, and had a profound reverence for God and sacred things. I remember yet the impressive phrase with which he used to intimate the hymn to the Sunday-school long ago: 'Let us now join together in singing to the praise of God.' These words, and his manner of saying them, made boys and girls more reverent. And now we think of Charlie as one of the countless number of the redeemed, who are singing praise and thanksgiving before the Throne of God."

I now quote from reminiscences by a lady who was at one time a frequent visitor to what she affectionately calls "the little house at Inver," and who had several interests in common with Charles Macintosh. This was Lady Dorothea Murray, eldest daughter of the late Duke of Atholl, now Lady Dorothea Ruggles-Brise. She writes to me as follows:—

"My friendship with Charles Macintosh dated from a considerable number of years ago, when I used to stay at Dunkeld House. We had many interests in common. At one time I was anxious to learn all I could of the old Dunkeld fiddlers, and I had collected the published works of the Gows, the Macintoshes, Malcolm Mac-

donald, and Dow, of Kirkmichael, together with the later MSS. of Crerar, McKerracher and Peter Hardie. These were a source of keen interest to Charles Macintosh, for some of them he had never seen. I was able to exchange with him unpublished compositions by Crerar, while he gave me the strange wild melodies of Peter Hardie. He also provided me with fragments of 'bothie songs,' but they are indeed only fragments, for more often than not he could remember but a few lines. He would sit on the edge of a table and sing or whistle the airs for me, and I would 'put them down.'

"Once only I offended him. He told me: 'I have an old torn book upstairs; it is no use to anyone; you may have it if you like.' He brought down an old MS. book of jigs, dated 1733. 'This is a curiosity,' I said, 'I would rather not rob you. Will you let me buy it?' 'In that case,' answered the old man, 'I will put it in the fire,' suiting the action to the words. I pulled the little book out of the flames just in time, and it is still in my possession. It has no musical connection with Dunkeld, but appears to be a collection of pipe jigs of the border country.

"He had a dislike to my seeing titles of airs which he said were 'not suitable for a lady to

read '—a chivalrous instinct, which I appreciated. In my researches amongst Scottish music, I am convinced that many old collections have been destroyed for that reason.

"As our friendship grew, I was anxious to give him some article that he would like to have; but what could one give to a man who said he 'wanted neither litter nor new fangles'? Eventually, however, I found for him what gave him much pleasure—first editions of *MacIntoshes and Gows*, which have lists of local subscribers. These are not very easy to find, but in time I collected and gave him nearly a complete set. He would scan the local names and addresses with the keenest interest: 'Oh, I mind him well as an old man,' he would say, or: 'His son played in the Band.'

"Besides a common interest in local music, we had another link in the subject of botany, and especially in 'fungus-hunting.' We would exchange specimens, and I was often struck by the painstaking accuracy of his identifications. At times I occasioned him considerable anxiety, for I was in the habit of cooking and partaking of various edible fungi, a practice which met with his strongest disapproval: 'They are for neither man nor beast,' he would say.

"We had other links, but space forbids me

to write further reminiscences. I shall miss his welcome in the little house at Inver. He was himself one of the links that are gone."

I next quote from one who was not only an intimate personal friend of Charles Macintosh, but who, as an accomplished botanist, was able to appraise his scientific work at its true value. This is Mr. William Barclay, who was for a number of years President of the Perthshire Society of Natural Science. In the course of a presidential address to the Society, delivered on November 14, 1907, he said: "To spend an afternoon in the woods, or an hour indoors at the microscope, with Charles Macintosh, is a treat of no ordinary kind. His enthusiastic love for his favourite study is beautiful to see. It makes the evening of his life not a time of rusting and weariness, but a time of usefulness and happiness. Long may he be spared to find delight in searching out the structure and life-history of some puzzling parasite on rotting leaf or decaying bough." Charles Macintosh was sixty-eight years of age when these words were written, and he was spared to enjoy other fourteen twilight years of peaceful study in the woods and at his microscope.

Before leaving the testimony of old friends who knew Charles Macintosh, I should like to

refer to one or two of the letters which were received in response to the appeal which was issued, shortly after his death, for funds to erect a memorial to him in his native village. The Duke of Portland, who had lived at Dalguise House in his earlier years, and remembered him as he was then, wrote: "It is very fitting and proper that a naturalist who did so much to promote the study of the fauna and flora of Perthshire should be commemorated." Lieut.-Commander J. G. Millais, R.N.R., F.Z.S., the well-known naturalist and artist, who also had spent many of his early days in the neighbourhood of Birnam, and had much in common with the postman-naturalist, wrote: "I am sorry to see our old friend Charles Macintosh has departed. He was a friend of my youth, when we lived at Dunkeld and Murthly."

Another old friend, a lady who lived at Dalguise House when Charlie used to call there on his postal rounds, and who afterwards made a name for herself as a student of fungi, wrote the following interesting reminiscence, recalling these early days: "It is a complete surprise to me to learn that 'Charlie' was living till last January—so little is left of old times that I thought he had died years ago. I can remember him since July, 1870, swinging up the avenue,

with long strides and head down, and a very small child, sent to 'get the letters,' waiting under a copper beech. Perhaps I remember this because, on that first occasion, I ran away —I don't know which of us was shyest! He was a keen observer and first-rate field naturalist fifty years ago, and the kind of student who would continue to learn throughout a long life. It is very fitting that his name and example should be remembered and honoured in his native place. The only lasting peacefulness is Nature, and it would be well if children—old and young—would study it like Charlie Macintosh."

Before leaving the subject of the memorial, mention should be made of the fact that the students of the School of Forestry, who were stationed in the district during and after the War, and to whom reference has already been made in a previous chapter, voluntarily contributed a handsome amount to the fund, in token of their affection for their late friend and helper. The company included both lady and gentlemen students.

We have spoken of Charlie Macintosh's two chief hobbies—music and natural history—but there was a third which deserves mention. This was wood-turning. The skill which he achieved in this handicraft is all the more

Photo by A. F. Mackenzie.

CHARLES MACINTOSH AT NEIL GOW'S OAK, INVER.

remarkable when we bear in mind his severe disablement. His lathe was in the little wooden shed attached to the end of his house, and here he would spend many lonely but happy hours, turning out artistic little knicknacks and useful household articles, which he gave as presents to his friends. These ranged in size from a potato-masher to collar studs. The last article he made was an elaborate reel-stand for his niece in Dunkeld. It was made from the wood of "Neil Gow's Tree," a famous oak which stands by the bank of the Tay in a park a few hundred yards above Inver. This was the tree under which Neil Gow used to sit, "far from the madding crowd," and compose his reels and strathspeys. It was also a favourite retiring spot of Charlie Macintosh's, and no wonder, for a more exquisite prospect could hardly be imagined than the view of Craigie Barns and the King's Seat, with the stately Tay in front and the Duke's Grounds on the further bank. The tree still stands, but a large limb fell from it some years ago, and it was from this limb that Charlie obtained the material for his work at the lathe. He frequently made articles for "sales of work" and other charitable purposes. I have before me now a letter from the present Duchess of Atholl, in which she

thanks him for some things which he had sent to Her Grace for a bazaar in which she was interested. She says: "Mr. Keir [the Duke's head forester] has just brought up the stool and reel-holder which you have made for the bazaar, and I write to thank you extremely for them. They are so well made, and being from Neil Gow's Oak adds to their value."

Charles Macintosh's personal appearance was striking. He was well over six feet in height, and walked with a quick step and a slight stoop. His figure was spare and loosely-knit, but wiry, and he was able, as we have seen, to endure a long and fatiguing day's work. His face was long and thin, with the prominent cheek-bones so characteristic of the Scoto-Celtic race, but what struck the stranger at once were the large and piercing eyes, looking out from under the projecting and shaggy eyebrows, indicative of his keen powers of observation and exceptional intelligence. The shaggy eyebrows were matched by an equally shaggy beard. He spoke with a quick, eager utterance, sometimes giving the impression that his ideas came more quickly than he was able to give them expression. His attire was generally old and threadbare, for a post-runner's pension did not leave much margin for new clothes, but yet he was

always neat and tidy in appearance. His love of orderliness came out also in the care and neatness with which he mounted and named his botanical and microscopical specimens. His little library of books, too, was arranged and catalogued with the same order and care.

Reference has already been made to his great love for the children. This was a very marked feature of his character, and applies equally to the boys and girls of his village and district. Although he was an old bachelor, with no children of his own, yet he was seldom without two or three young people on his country rambles. It is needless to say that this devotion was mutual, and that the children would have done anything for their beloved "Tosh" as they affectionately called him. I have in mind, in particular, one home in Inver, where there was one little girl keenly interested in botanical studies. Often in the winter evenings he would bring his microscope to her cottage, and spend hours in explaining the microscopic structure of the tissues to her and her sister; and also lent them botanical books to help them in their studies. Then, when summer days came, he would take them, and other children from the village, long rambles in the country. A favourite route was up the hill by Dundonachie

to a romantic spot known as the "Deserted Village." At other times they would go by Tomgarrow, or Tomnagrue, or by Glen Garr to Balhomish, etc. On these expeditions he would point out all that was interesting in the way of plant and animal life that they met with. He would name the different birds as they flitted from tree to tree, and teach the children to recognize their different calls—the Curlew's plaintive note in Glen Garr, the Chiffchaff calling from the tall trees in the Hermitage Grounds, the Flycatchers in the thicket by the wayside, etc. Then the flowers would be referred to their natural orders and their structure explained, while the lowlier mosses and lichens and fungi would not be overlooked.

Besides the informal walks and talks with the Inver children, he frequently conducted nature knowledge rambles for the children of the higher classes in Torwood Public School, Birnam, and the Royal School, Dunkeld. The former was under Mr. John Purdie, and afterwards Mr. Charles A. Lunan, as headmaster; while the latter was under Mr. Henry Crombie, M.A. All of these were excellent teachers, and thoroughly in sympathy with Charles Macintosh's endeavour to instil into the minds of the children a love of nature, not only as a means of personal culture,

but also as an aid to the training of powers of observation and reasoning in the pupil. Recognizing the educational value of such training, the Scotch Code allows of such nature knowledge rambles being counted as school attendance.

Mr. Crombie had amongst his senior pupils what he called a "Hobbies Club"—a most excellent institution, well worthy of imitation by other public schools—and it was under the auspices of this club that the rambles were conducted. In referring to these, Mr. Crombie spoke of Mr. Macintosh as one of Nature's true gentlemen—many-sided, pawky, courteous, considerate. He also emphasized the great personal affection which the pupils evinced towards him. The excursions were kept up even to the summer of 1921, within a month or two of his last illness. He would come to the school armed with his capacious old fishing-basket and his stout walking-stick, and with the faithful Cailleach trotting by his side. Mr. Crombie noticed particularly how his trained musical ear was brought into play in detecting the varying seasonal notes of the birds. He would say to the children: "Now, this is the spring song" of such and such a bird, or "This is the summer song" of another, and then he would whistle the cadence to impress it on their memories.

Only a trained ornithologist would have detected the different turnings of the musical phrases, and only a trained musician could have reproduced them. He not only acted as leader at the natural history rambles, but he also kept the school supplied with specimens which were used by the teachers for demonstration purposes in their nature knowledge classes, and he acted as referee in all cases where difficulty was experienced in identifying specimens brought in by the children.

Mr. Lunan had very much the same story to tell with regard to the rambles conducted in connection with his school. These were confined, as a rule, to the girls and boys attending the supplementary classes and the senior classes immediately below these. The routes chosen were generally up the Inchewan Glen to Birnam Falls, or down the bank of the Tay from Birnam towards Murthly, or the fields around Little Dunkeld Parish Church, or along the Inver road to the Hermitage Falls. The structure of the different flowers met with was carefully explained, and also the character of the various trees, both native and introduced, for which the district is so famous. If the ramble happened to be in autumn, the woods would be visited, and the structure and life-history of

the fungi demonstrated. One point which Mr. Lunan remembered in particular was the way in which Charles pointed out the difference between "natives," "colonists," "naturalized aliens," and "casual aliens" among the flowering plants, and showed how, in many cases, foreign plants, which may have been thrown out on waste ground as garden refuse, had supplanted native species, if they were better equipped for the struggle for existence. In this and other ways he sought to lead out (i.e. to "educate") the children's reasoning faculties. As Mr. Lunan very truly expressed it, Charlie Macintosh was a "born teacher." And yet, paradoxical as it may seem, he remained to the end a child at heart himself. Perhaps I should rather say that it was just for this very reason that he was able to lay himself alongside the child's mind and make it grip the truths he was trying to impart.

Much more might be said regarding Charlie Macintosh's character and characteristics; but I shall have failed in my purpose if these have not become evident in the unfolding of his life's story.

CHAPTER VIII

MUSICAL ACTIVITIES

1. As Violinist and Precentor

As we have already seen, Charles Macintosh early displayed his love for music, which he inherited chiefly from his father's side of the house. It is perhaps a common belief that music is an inheritance of the sunny south more than it is of our colder clime; and yet, when we come to look into the matter more closely, we find that no race has produced a richer variety of folk-music than the Celtic race. This applies to all the branches of that race, the Welsh, the Irish, and the Scottish, each of which has a genius peculiar to itself. Perhaps the leading characteristic of the music native to the Scottish Highlands is its strain of melancholy, in keeping with the stern nature of the scenery. Much of the ancient folk-music of the Highlands, which had been committed to memory rather than to paper, has

been irrevocably lost, but much also has been retrieved, thanks to the efforts of enthusiasts, such as the one whose life we are now considering.

Charles Macintosh's musical talent found vent in three different directions—as performer on the violin and violoncello, as leader of psalmody in the Parish Church, and as composer and arranger of music, both secular and sacred. Each of these will be considered in turn, but the last I shall leave to my friend, Mr. Wiseman, who is able to speak on it with the authority of an expert.

We have already seen that Charles received lessons in violin playing from his father at quite an early age, and that it was after his accident that he took to the larger stringed instruments. In his earlier studies he would be stimulated by the example of his uncles, as well as that of his father, and we can well imagine what a keen disappointment it must have been to him when he had to give up the use of the small "fiddle," to give it the name by which it is best known in Scotland. We can but admire the more the indomitable spirit which made him persevere with the violoncello in spite of such a serious handicap.

The subject of the present memoir was a

connecting-link between the older string band in which his father had played the leading part, and the newer one which was conducted by his brother James. In the former, the chief performers, besides the McIntoshes, were the Murrays, who were dyers in Inver. Tam Murray played the "little fiddle," along with Charles McIntosh the Second, and Peter Murray played the 'cello, while other performers were William McLeish and Duncan McKerracher, of Aberfeldy. A great impetus was given to young Charles's enthusiasm for music when Duncan McKerracher, who was known as the "Atholl Paganini," left Dunkeld and came to reside at Inver, in what had been Neil Gow's house.[1] He used to visit the McIntoshes' house almost every evening, when Charles and James were little more than lads, and were "daft" about music. One can well imagine what a feast of music must have regaled the inmates of the cottage on the braehead on these memorable evenings. When Charles was in his father's band, before he met with his accident, he played the violin, but after that, both in his father's and in his brother's band, he played either the 'cello or the double bass. Both of these instruments were commonly known in the dis-

[1] He came originally from Loch Tay side.

Photo by A. F. Mackenzie.

CHARLES MACINTOSH AS A YOUNG MAN, WITH HIS VIOLONCELLO.

Photo by Miss Edwards, Inver.

CHARLES MACINTOSH, WITH HIS VIOLONCELLO, AT THE AGE OF 80.

trict as the "bass fiddle." The band consisted chiefly of the different members of the Macintosh family, although McKerracher and McLeish frequently took part also. In more recent years James Macintosh started a flute band, for the sake of the young men and lads of the district, which had a long and successful career, and played at many public functions.[1]

It was in connection with his experience as bandmaster, many years ago, that James Macintosh began to take a prominent interest in the temperance movement. Before that time it was the universal belief that no one could play all night at a ball without an occasional "dram" to keep up his stamina. One night James tried the experiment of doing without the accustomed refresher, and was amazed to find next morning that, instead of being fagged out, he was more fit than he had ever been before, after a long night's "fiddling." He at once determined to adopt the new régime, and in time practically all the members of the band followed his example. For the past thirty-six

[1] In 1877 James Macintosh received a gold watch from the citizens of Dunkeld in recognition of his services in connection with the Flute Band. He has now (1922) been connected with the String Band for fifty-six years, having joined it under his father's leadership when quite a youth, and latterly acted as leader himself for many years. During that long period the band has played at balls in all parts of the Highlands.

years he has been the most active member of the local lodge of the Independent Order of Good Templars, known as the Vale of Atholl Lodge, in which he rose to be Deputy Grand Chief Templar. Charles showed his interest in the cause of temperance by becoming Superintendent of the Band of Hope in connection with little Dunkeld Parish Church. Each winter he conducted a series of interesting meetings for the young people, in which music and science had a prominent place. In summer the indoor meetings were exchanged for natural history rambles among the surrounding fields and woods and hills. These excursions, which took place on the Saturday evenings, were eagerly looked forward to by the members. As one lady, formerly a member, recently expressed it, they "would not have missed the rambles for anything." The unostentatious efforts of the Macintoshes in the cause of temperance did much to redeem the musicians of the Highlands from the stigma which had too long attached to them of an over-partiality for their native "Mountain Dew."

Charles and James were both Freemasons, as well as Good Templars. They were members of Lodge No. 14, St. John, Dunkeld, the Lodge to which the Dukes of Atholl, for several genera-

tions, have belonged. Here also their musical talents were brought into requisition, and they frequently had to play at Lodge meetings in their full regalia. Duncan McKerracher was also a Freemason, but he belonged to the Tay and Lyon Lodge, where the proceedings were frequently enlivened by the strains of "Paganini's" violin.

Charles was a member of the string band almost all his life, first under the leadership of his father, and then under that of his brother, James. He continued to play in it as long as he was able, and only retired when compelled by failing health, not many months before his death. Sometimes there were only the two brothers, playing violin and 'cello, at other times a second violin was introduced,[1] and later a double bass was added, to balance the lighter strings. Still later, one or more wind instruments, such as the piccolo or the cornet, completed the combination. It was essentially a band for accompanying dancing, so that the more varied orchestral instruments were not required. As the band played at balls in nearly all the country mansions of Perthshire, the Macintoshes came in contact with many interest-

[1] In the old Highland string bands, two violins and a 'cello—or "bass" as it was called—always formed the foundation, although these might be duplicated as occasion required.

ing people, and played before numbers of distinguished strangers. We have already seen how they played before Queen Victoria and Prince Albert at Taymouth Castle, and, on another occasion, before the Prince and Princess of Wales—afterwards King Edward VII and Queen Alexandra—when the latter were the guests of the Duke of Atholl at Blair Castle. On this occasion, the Prince took part in what was called an "Everlasting Jig," in which every gentleman had to dance with every lady in turn, and, as the company included a number of the humbler retainers and their lady friends, he had his work cut out for him, but he pluckily kept it up till the end.

The reference to Charles as the Superintendent of the Band of Hope in Little Dunkeld Parish Church leads us to the consideration of an even more important office which he filled in the church for many years, with great acceptance, namely that of Precentor, or leader of psalmody. His father had been Precentor of the Free Church in Dunkeld, but he was in the habit of giving the choir of Little Dunkeld Parish Church occasional courses of instruction in Church music, in connection with his peripatetic "singing schools," and in this way kept up a friendly connection with them. It was as

the outcome of that connection that his son, Charles, ultimately became Precentor of that church. This was in 1875, when he was thirty-six years of age, and still acting as post-runner in the Dalguise district, and he continued to hold the office till 1899, when he had reached the age of sixty, a period of twenty-four years. During all that time the minister of the church was the Rev. J. S. Mackenzie, A.M., who was inducted to the charge in 1866, and continued to hold it for the long period of fifty-two years, until his death in 1918. All the members of the choir were devoted to "Charlie Macintosh," as he was familiarly called, and those who still survive speak of him in terms of affectionate remembrance. They were always teasing him, and playing practical jokes on him, while he, in his pawky way, would scold them, and call them "stupid idiots," but ever with the utmost good humour, and with a sly twinkle in his eye. He was not really a hard task-master, but his instruction was based on a true instinct of musical appreciation, as well as reverence for the sacred subjects with which he was dealing, and his pupils knew this. He was far above the type of precentor that was frequently met with in the rural districts of Scotland a generation or more ago, whose zeal outran their know-

ledge, for with Charles Macintosh music, and especially sacred music, was always a passion. He revelled in some of the grand old Psalm tunes that are to be found in the Scottish Psalter, which combine both dignity and pathos, but many of the more modern hymn tunes he thought entirely unsuited to the words, and longed to improve upon them, which, indeed, he frequently did. It was an inspiration to see the long, lank figure standing in front of his choir on Sunday morning, and throwing his whole soul into the task of bringing the best possible out of them, for the service of the Master. One felt that this was praise indeed, and no mere affectation of artistry.

One function in connection with his labour of love as Precentor, in which he took whole-hearted delight, was the Flower Service which was held during the summer months. One of these in particular, held in 1898, the year before he retired, is remembered still by those who were privileged to take part in it. One can well picture the eager zest with which he would gather some of his favourite wild flowers and ferns, and even some of the gaily-coloured fungi, to decorate the pulpit and the choir; and then the pleasure of choosing and practising the appropriate selection of praise. This was

no perfunctory task, but a labour of love indeed, in every sense of the term.

In the following year, 1899, when he had reached the span of threescore years, he thought the time had come when this important office should be in younger hands, and so, with much regret, his resignation was accepted. The congregation, however, would not let him go without some tangible recognition of his devoted services, rendered gratuitously over a period of just on a quarter of a century. They insisted on his acceptance of a diamond pin and gold watch-chain, with a bloodstone pendant, on which was engraved the following inscription: "Presented, along with a Diamond Pin, to Mr. C. McIntosh, from the Choir and Kirk Session of Little Dunkeld, as a token of esteem. May, 1899." A simple tribute, it is true, yet more sincere and heartfelt than such tributes often are.

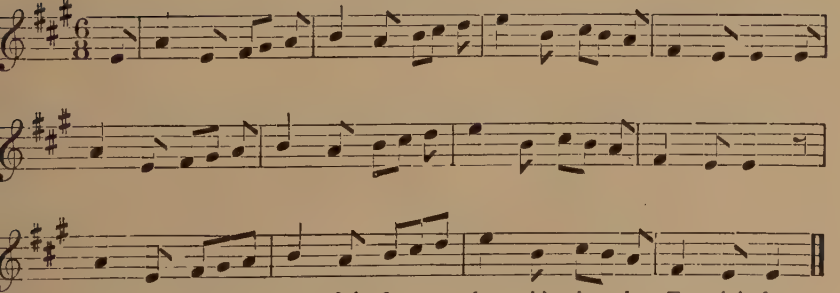
But we have not even yet exhausted the list of Charlie Macintosh's activities on behalf of Little Dunkeld Parish Church. During the same years when he was leading the choir, he was also acting as Superintendent of the Sabbath School, a task which must have been specially congenial to his nature, for he loved to be with the children. He generally had three lady teachers, and he himself taught the class of

older lads. Two of the assistants who were with him when he gave up the school still survive, and one of these has given me the following impression of her revered chief: "His teachers all adored him, and looked on him more as a father than as a mere superintendent. It was a great treat to listen to him giving a Bible lesson. He was a strict disciplinarian, and kept perfect order in the class, and yet all the scholars loved him. Wherever it was possible, he used nature knowledge illustrations to elucidate his subject, thereby arresting the attention of his pupils at once. In this he was, of course, but following the example of the Master Himself. Then, on week-days, he would take them out rambles, to explain still further what he had been talking about in the class. For instance, on New Year's Day, 1894, he took them a walk over Craig Vinean, and down on Ballinloan, in Strathbraan, to show them the effects of the great storm of November 17, 1893, which laid low tens of thousands of trees on the Atholl estates. Thus he impressed on them the lesson of the power and majesty of the Creator as displayed in the realm of nature. A strong spirit of *camaraderie* existed between Charlie and the members both of his teaching staff and his choir. Frequently they would convoy him

1.—THE MERRY LADS O' INVER.

2.—THE BIG BOAT O' INVER.

3.—THE FEEIN' DAY.

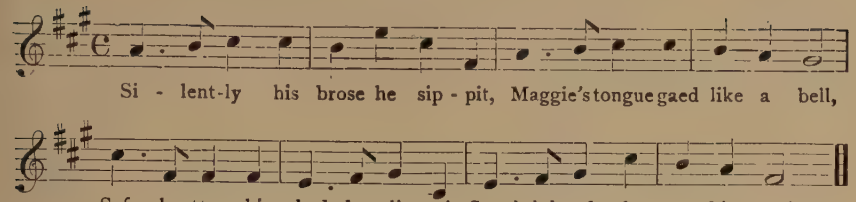


home to Inver after the Sabbath morning service or week-night practice, exchanging banter or more serious talk."

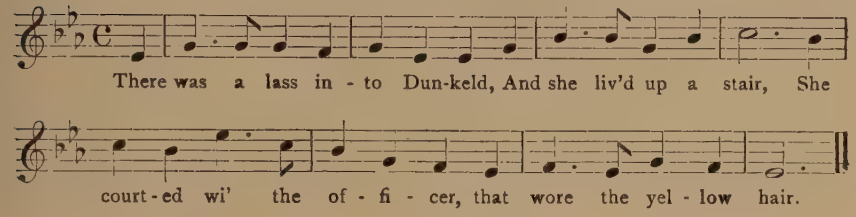
His choral efforts, however, were not confined to the church choir. In 1884 he helped to found the Birnam Musical Society, in connection with the Birnam Institute, and became its first Honorary Conductor. This post he continued to hold for a number of years, with much acceptance, training the choir during the winter session and conducting a concert at the close. They also gave concerts in a number of the surrounding towns and villages, including the large public asylum near the neighbouring village of Murthly, where their performances gave great pleasure to the inmates. The programmes of these concerts have been preserved, and show that much care was exercised in the selection of the glees and part-songs to be performed. The following are a few of the pieces, culled at random from the repertoire, and some of them are not so often met with in modern programmes as they might be: "Welcome to Spring," "The Boatie Rows," "Meet me on the Gowan Lea," "We Rock Away," "O, Lady Fair," "There was a Lad," "O' a' the Airts" and "Who shall win my Lady Fair." It will be seen that the different nationalities of British song are

mingled with admirable impartiality. At the close of one of the concerts, Lady John Manners, afterwards Duchess of Rutland, who had a house at Birnam, in proposing a vote of thanks to the performers, complimented them very warmly on the high level of their work, and, as she was a musician herself, this was no mere empty compliment. Afterwards Mr. A. F. Mackenzie, Birnam, the President of the Society, presented Mr. Macintosh, in the name of the members, with a set of Chambers's Encyclopædia, eulogizing, in doing so, his "rare knowledge and pure enthusiasm for music," and emphasizing the fact that his services had been given as a labour of love. Charles replied in the following characteristically bantering and yet modest terms, which I make no excuse for quoting in full: "For some time past I have felt surrounded by an air of mystery. I was uncertain what was to happen. I thought perhaps I was to receive a polite note, thanking me for my valuable services, but, at the same time, telling me that they would not be further required! Well, I am glad it has not just come to that yet, but you have done the next worst thing. I am sure you all know that I never expected, nor looked for, anything in the way of reward for any services I have been able to render. I

4.—SILENTLY HIS BROSE HE SIPPIT.

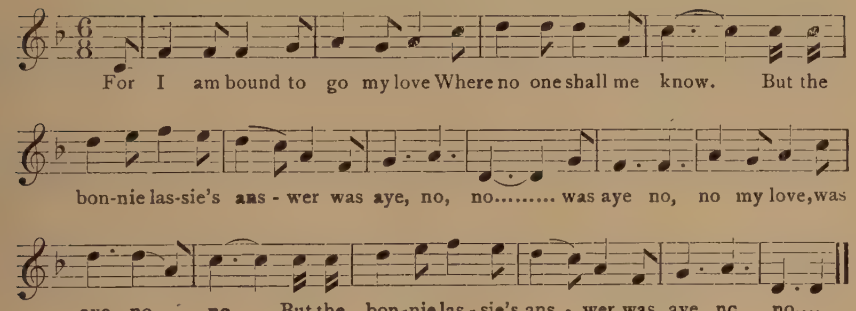


5.—THE LASS INTO DUNKELD.

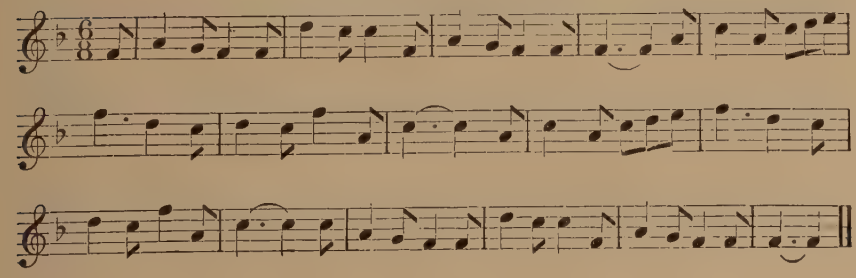


6.—AYE, NO, NO.

(THE BONNIE LASSIE'S ANSWER.)


For I am bound to go my love Where no one shall me know. But the
bon-nie las-sie's ans - wer was aye, no, no..... was aye no, no my love, was
aye, no, no. But the bon-nie las - sie's ans - wer was aye, no, no....

7.—IRISH MOLLY, OH.



know very well that there are other gentlemen in the district who would be only too glad to render you the same services on the same terms. Yea, verily, ladies and gentlemen, we have them amongst ourselves, and that is something to be proud of. I have never looked upon myself in any other light than simply as a member of your Society, and when the time comes that you will require a more competent conductor, I am sure I shall be very glad to take my seat in the choir." Surely there could not have been a speech more free from that spirit of professional jealousy which, we are sometimes told, is apt to mar the harmony of such societies.

CHAPTER IX

MUSICAL ACTIVITIES

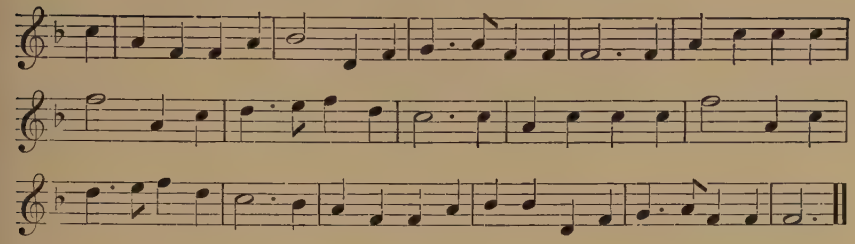
2. As Composer

Charles Macintosh, as we have seen, was interested in music all his life, but it was more particularly in his later years that he took to composing. The reason for this probably was that then he was feeling not quite so able to take long walks in the pursuit of his scientific investigations. During these later years he spent many long hours indoors, covering all the odd scraps of paper he could lay his hands on with musical memoranda.

Of course, the great majority of these scraps, which, unlike another "scrap of paper," were intended for harmony and not for discord, have been lost, but a few, which were treasured by the recipients, have been preserved. These have been through the critical hands of Mr. Herbert Wiseman, who will give his verdict on them in this chapter.

8.—THE BANKS OF SWEET DUNDEE.

(VAGABOND SONGS AND BALLADS.)



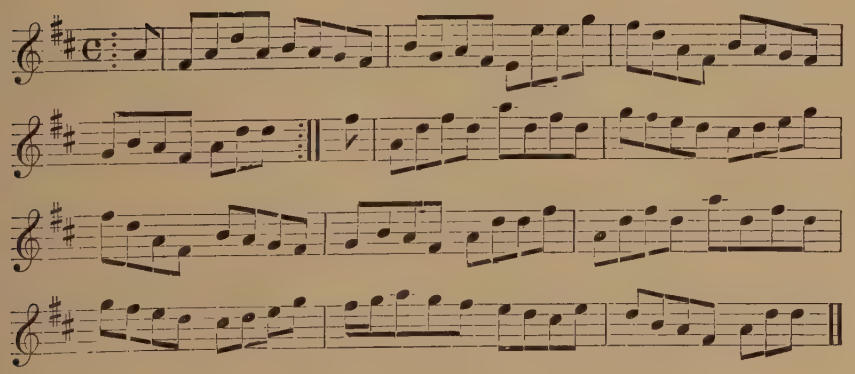
9.—THE AULD BOAT O' LOGIERAIT.

"STRATHSPEY." C. MACINTOSH, 1914.

10.—MISS MURRAY THREIPLAND OF FINGASK.

(REEL.)

C. MACINTOSH.



As we have already seen, the folk-music of the Highlands was the link which drew the Lady Dorothea Ruggles-Brise to Charles Macintosh's humble dwelling, and many discussions they had on Scottish music and Scottish musicians. He was able to give her much information about Neil Gow, and the other "fiddlers" of the district, and also about the old songs and airs that used to be sung by the ploughmen and others, in field and market during the summer days, and in the "bothy" during the long winter evenings.

Charles Macintosh's activities in musical composition manifested themselves in three directions—the composing of original airs, both sacred and secular; the adapting of old Highland airs to certain hymns and songs; and the transcribing of old "bothy songs," and other examples of folk-music, as he heard these sung at rural gatherings. He never had any thought of publishing his compositions, but merely wrote them out to please his friends, to whom he would send them as Christmas or birthday greetings.

Amongst his compositions were a number of voluntaries, some of which were entirely original, while others were based on quaint old Highland airs. Sometimes, when he was not

able to be out at morning service, a neighbour would bring home word that the lady who presided at the organ had nothing suitable to play in the evening, when Charlie would at once sit down at his little harmonium and improvise a voluntary for the occasion.

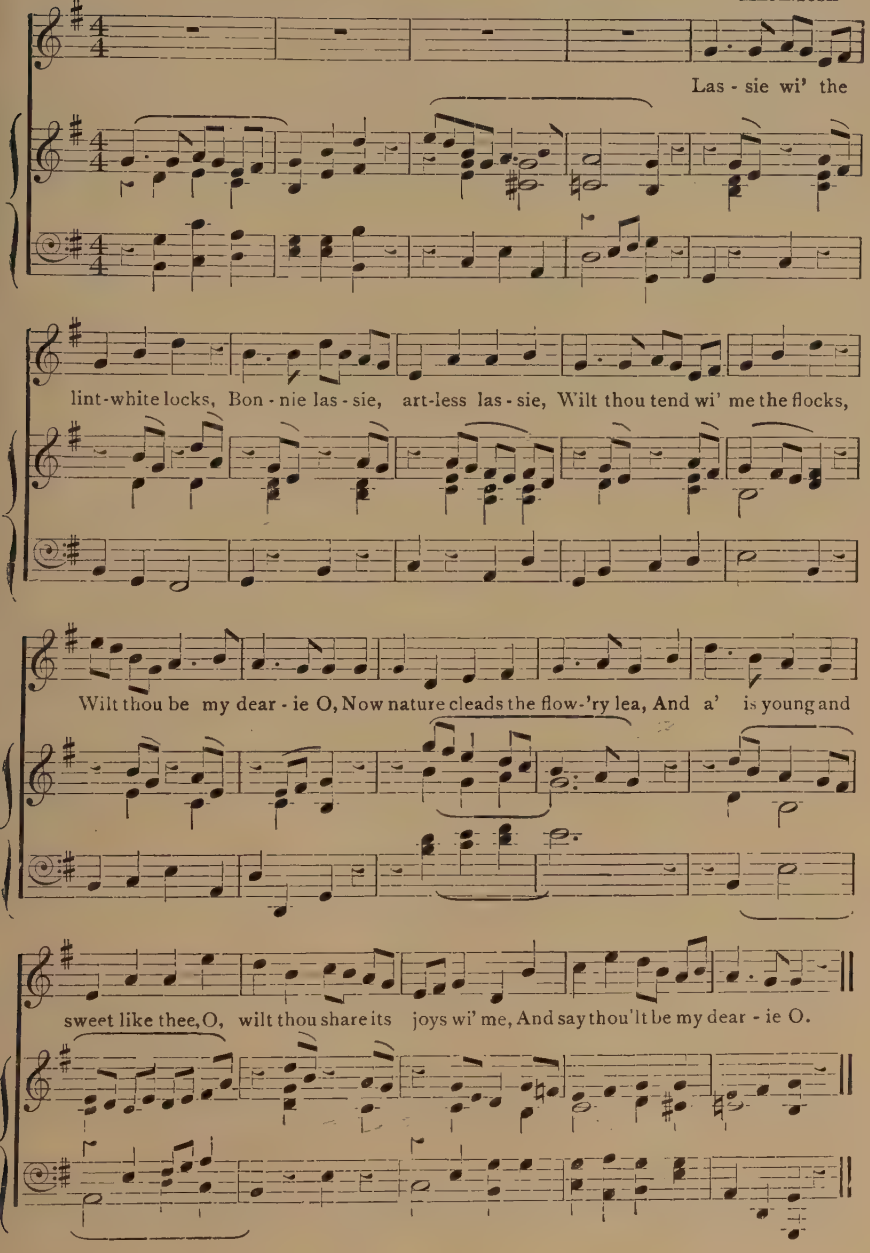
In many cases he was not satisfied with the airs to which the songs of Burns and other writers had been set, and he tried to improve upon them. Two examples of these were "Lassie wi' the Lint-White Locks" and "The Highland Lassie." During the Great War, Mr. Macdonald, the talented station-master at Dalguise, not far from Dunkeld, published a volume of patriotic poems, which realized a very considerable sum for war charities. Some of these Charles Macintosh set to music, including: "Only a keeper's assistant, only a lad from the glen," and "Pride of thy home, now asleep on the battlefield." He took exception also to the tunes to which certain of our familiar hymns are set, thinking them unsuited to the words, and here again he exercised his talent in trying to improve upon them. One of these was the hymn beginning: "Brightest and Best of the Sons of the Morning," to which he composed a tune which is full of sweetness.

But here I leave the subject of Charles Macin-

11.—LASSIE WI' THE LINT-WHITE LOCKS.

(BURNS.)

C. MACINTOSH.


Las - sie wi' the
lint-white locks, Bon - nie las - sie, art-less las - sie, Wilt thou tend wi' me the flocks,
Wilt thou be my dear - ie O, Now nature cleads the flow-'ry lea, And a' is young and
sweet like thee, O, wilt thou share its joys wi' me, And say thou'lt be my dear - ie O.

tosh's musical compositions to a more expert pen than my own.

CHARLES MACINTOSH, AS COMPOSER, AND COLLECTOR OF OLD TUNES.

By Herbert Wiseman, M.A.

It is always an interesting experience to be brought into contact with the origins of anything, and the reading of many of the tunes written down at odd moments by Charles Macintosh inspires one with the feeling that here, in less sophisticated days, before the mere mechanical skill in writing down music was so much developed, would have originated many folk-tunes which would ultimately have become great.

Folk-music probably began with the earliest cries of the savages, expressing fear, anger, joy or other emotion. Afterwards, monotonous rhythms were evolved, and, after long ages, little tunes sprang up, combining pitch and rhythm. From these rude and undeveloped things it is a long step to our own glorious heritage of folk-song—a heritage which, except for Ireland, is unrivalled, for deep emotional content, in the whole world. One great characteristic of folk-song is that though, of course, it is first conceived in the mind of one individual, it is not written

down, but is handed on orally, and, in course of time, slightly modified by the various singers.

Had Charles Macintosh lived some hundreds of years ago, he would undoubtedly have been the originator of many folk-songs, and his position in the history of Scottish music would have been comparable to that of the unknown singer (whether man or woman) of the Hebrides, the fruits of whose work are to-day being gathered and arranged with such skill by Mrs. Kennedy-Fraser.

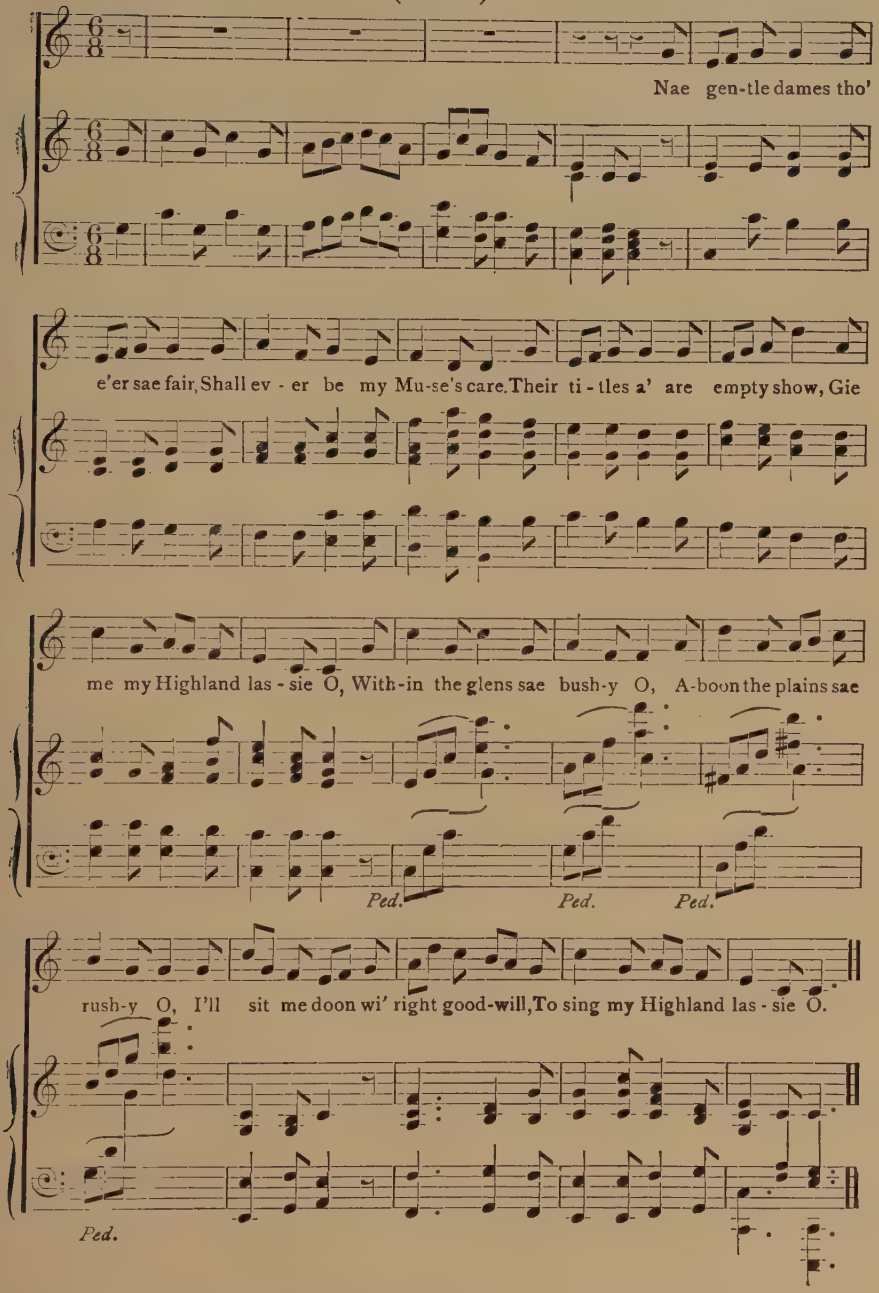
He was evidently steeped in the folk-song idiom of his native land, and had a great love for all its manifestations, and the best of his compositions are undoubtedly those which reflect this most strongly. His fiddle playing was also, to judge from his works, much the most intimate part of his musical ego, and the reels and strathspeys which he wrote for this instrument are strong and characteristic.

Amongst his jottings are two fine reel tunes which, he notes, "have been floating about Inver for generations": "The Merry Lads o' Inver" and "The Big Boat o' Inver." They are here reproduced as noted by him (see illustrations 1 and 2).

These are two capital tunes, which are well worth preserving in more permanent form.

12.—THE HIGHLAND LASSIE.

(BURNS.) C. MACINTOSH.


Nae gen-tle dames tho'
e'er sae fair, Shall ev - er be my Mu-se's care. Their ti - tles a' are empty show, Gie
me my Highland las - sie O, With-in the glens sae bush-y O, A-boon the plains sae
Ped. Ped. Ped.
rush-y O, I'll sit me doon wi' right good-will, To sing my Highland las - sie O.
Ped.

With the life he led and the contact into which he was brought with many ploughmen and others who have preserved the old folk-songs and tunes, it is not surprising to find that he gathered up many fragments of dance measures and bothy ballads. The pity is that he does not seem to have written down all that he must have heard. Had he done so, we should have had a great contribution to the study of this fascinating branch of the art of music.

Fortunately, through the kindness of Mr. Alex. Sim, formerly of Birnam, now of Aberdeen, who is a fiddler of distinction himself, and who owes his first introduction to music to Mr. Macintosh, we are able to give some specimens of the bothy tunes noted by Mr. Macintosh. Some of these are to be found noted in other versions by other collectors, and it is interesting to compare these versions with those given here (see Illustrations 3, 4, 5 and 6).

He gives "The Bonnie Lassie's Answer" in almost exactly the same form as appears in Mr. Robert Ford's *Vagabond Songs and Ballads of Scotland*, but the air under the title of "Irish Molly, Oh," seems to be built on the same material as the tune which Mr. Ford gives for "The Banks of Sweet Dundee." Both airs

are reproduced for comparison (see Illustrations 7 and 8).

It will be noted that the version picked up by Mr. Macintosh, presumably in the vicinity of Inver, is much more free, and has a better lilt, than the other, but they are evidently the same tune, and it has certain characteristics which point to its Irish extraction. The problem is to explain how this tune, which, in still another version, was picked up by Mr. Herbert Hughes in the north of Ireland, and published by him under the title of "The Ninepenny Fiddle," found its way to Inver and to the Carse of Gowrie. Probably the explanation is to be found in some wandering Irishmen looking for a job at the harvest or turnip-thinning time. The same phenomenon is found in several other instances. The air, for example, which was collected by Mary Carmichael in County Wicklow, entitled "The Croppy Boy's Lament," was claimed as an old familiar friend by a man I once met in Argyllshire.

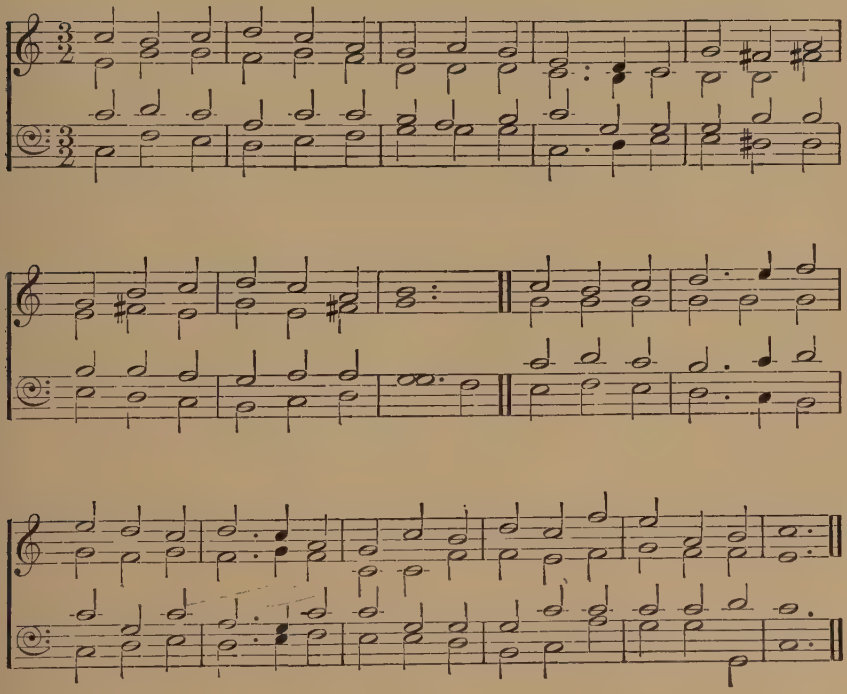
When we pass on to Mr. Macintosh's own compositions, we find him much more at his ease when he takes as his models the folk-music he was so fond of, than in his hymn tunes, where his models were evidently not nearly so good. Verily the hymn-tune writers

HYMN TUNES.

13.—EUPHEMIA.

DEDICATED TO MRS. ALEX. SIM.

BRIGHTEST AND BEST OF THE SONS OF THE MORNING.



of the mid-nineteenth century have much to answer for.

Illustration 9 is a typical example of his fiddle music. It will be noticed that this is in the true Strathspey style—very much of the same type as "Tullochgorum"—written in an old mode, with the flattened seventh predominant.

Or take the example given of a reel tune (see Illustration 10). Here again we have the genuine lilt which can only be got by one who has it really in his blood. No mere trained composer could ever hope to capture it to anything like the same extent. Macintosh is simply giving vent to his feelings in his own natural way.

In his choice of the poems to which he has composed settings, he seems to have been influenced by several considerations. There are several poems by Burns; others, like "The Robin's Song," which show his love for nature and the countryside; and still others which show his love for his native land, particularly during the Great War. His settings are not uniformly happy, but there is in all a feeling for beauty and an appreciation of the meaning of the poems.

His settings of "The Lassie wi' the Lint-

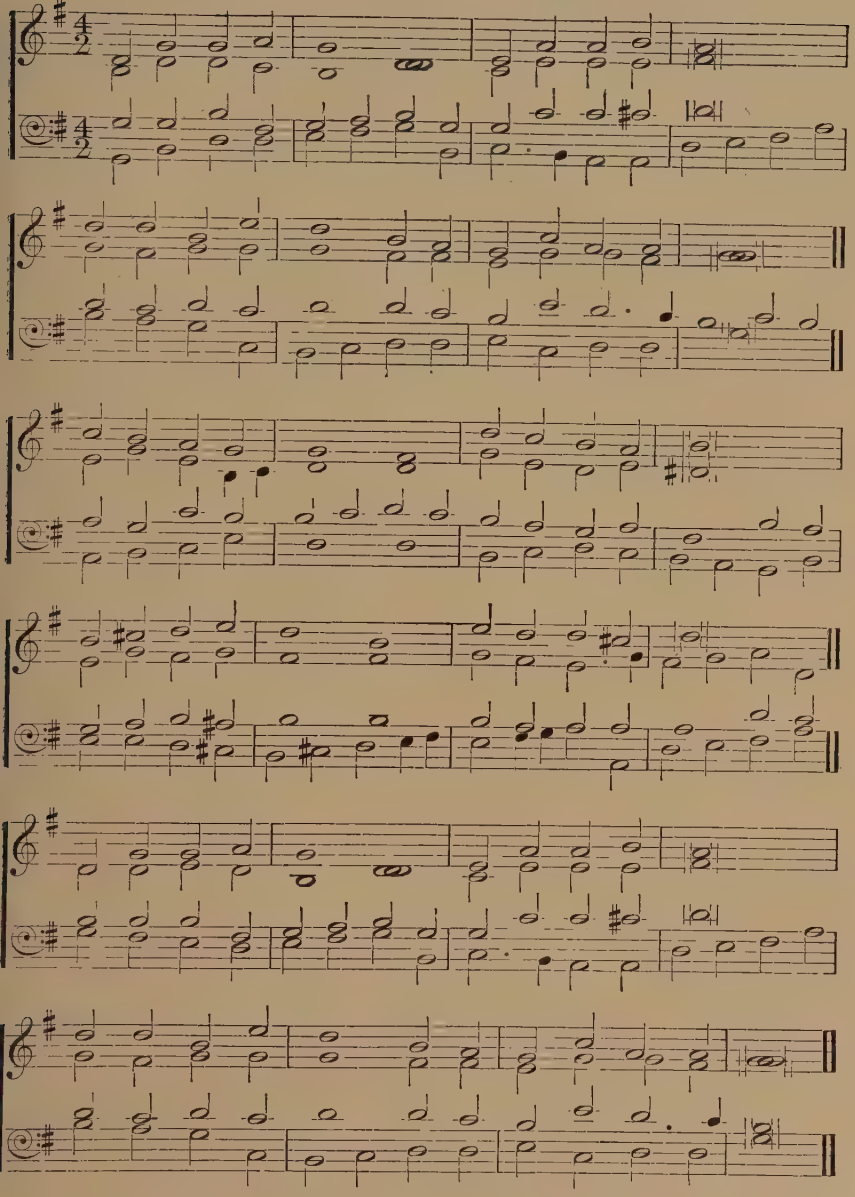
White Locks" and "The Highland Lassie" are also given (see Illustrations 11 and 12). These two tunes have a quaint tenderness which is really beautiful. They are by far the best of his songs, so far as they have come under our notice. The idiom in both cases is distinctively Scottish and characteristic. In reproducing them here, the tunes have been preserved exactly as he wrote them, but the accompanying harmonies have been altered a little, though in the alterations an endeavour has been made to catch the spirit of the original and to express the composer's intentions.

We close this chapter with a reference to two of his hymn tunes (see Illustrations 13 and 14). The first of these tunes is associated with the hymn "Brightest and Best of the Sons of the Morning," and the second with "Standing at the Portal." These are only two of a large number of similar tunes to various hymns. They, along with some voluntaries which he arranged for the organ, show that his mind was often turned towards the music of the Church, and it would have been exceedingly interesting if he had written his hymn tunes in the same straightforward folk-song idiom which he used in his other compositions. That he had this idea, though perhaps only subcon-

HYMN TUNES.

14.—STANDING AT THE PORTAL.

DEDICATED TO MISS AND MISS B. JACKSON. 1st *Jan.*, 1921.



sciously, in his mind, is shown by the fact that some of the voluntaries he wrote are really adaptations of old tunes to the harmonium. With his gift for writing melodies which were distinctively Scottish, he might have started a new type of hymn tune. Instead of that, he took as his models tunes written by a group of Englishmen in the middle of last century, and hymnology is the loser. The two specimens printed here are typical of the others. They are good, strong, healthy tunes, the product of a mind which felt deeply and pondered well over the function of music in our Church services, and we must thankfully accept them for what they are, and waste no more regrets on what they might have been.

CHAPTER X

AS A BOTANIST

1. Among Flowering Plants and Ferns

All plant life falls under one or other of two well-defined categories—flowering plants and flowerless plants. The former are reproduced, and the species perpetuated, by means of seeds, which are the product of more or less conspicuous flowers. I say "more or less" conspicuous because many flowering plants—such as most of our forest trees, as well as the grasses, sedges, rushes, etc.—are hardly recognized as such by the "man in the street," although these all bear true seed-forming flowers.

If ferns were Charles Macintosh's "first love" in botany, then flowering plants were a good second. The former he took up when he was a lad in his teens at the saw-mill, while the latter seem to have engaged his attention all the time he was in the postal service, from 1858, but more especially after he changed

from the Tullymet to the Dalguise route in 1863, although at that time his interest in botany was probably more general than scientific. It was about ten years after this—in 1872–3—that he made the acquaintance of Dr. Buchanan White, who was three years his junior, and the friendship which then began gave a great impetus to his botanical studies. Even at that early stage Dr. White was contemplating compiling a *Flora* descriptive of the flowering plants and ferns of Perthshire, although the work was not completed and published till after his death, some twenty-five years later. It was thus his *magnum opus*, and, in a literal sense, his life's work. With this project in his mind, we can well believe how delighted he would be to meet such a keen fellow-student as Charles Macintosh, and the *Flora*, as it stands to-day, bears abundant evidence of the help which its compiler got from his new-found ally in those days. In the book are to be found between forty and fifty references to Charles Macintosh's discoveries, but, in addition to these, "Inver" frequently appears as a locality for other species, indicating no doubt either that he had supplied the specimens, or that he had guided the Doctor to the spots where they were to be got.

The localities given in the *Flora* for Macintosh's "finds" indicate pretty clearly the ground covered in his botanical rambles. They include Dunkeld, Birnam, Inver, Dalguise, Strathbraan, Rumbling Bridge, Hermitage Falls, Inchewan Glen, Dalpowie, Tomgarrow, Inchmagranachan, railway embankments near Birnam, mouth of the Braan, Glen Albert, Tay-side at Dalmarnock, at Balmacneil, at Kinnaird House, at Dalguise, at Logierait, etc. It will be seen that many of these lay on his beat when acting as post-runner between Dunkeld and Kinnaird House. Some of those further afield may date from the period after he had retired from the postal service, although by that time he was turning his attention more to the fungi and other cryptogams. The book which he invariably used in identifying his specimens was Sir J. D. Hooker's *Student's Flora of the British Isles*. His copy, dated 1870, is worn literally to tatters, showing what constant use he made of it. Probably, too, he carried it with him on his excursions, for it bears evidence of having got more than one soaking. For structural botany he depended upon Lindley's *Vegetable Kingdom*, which was another of his old favourites.

It is interesting to note that of the forty or fifty records referred to above, fully half belong

to four of the most difficult and critical genera of British flowering plants, namely the brambles, the roses, the hawkweeds and the willows (*Rubus, Rosa, Hieracium* and *Salix*). This proves conclusively that Macintosh was no mere amateur collector, but a serious student of botany, who was not afraid to tackle the more difficult problems of the science, although he did not profess to have an expert knowledge of these genera, such as can only be acquired by the specialist who has devoted to them the study of a lifetime. What makes most of these groups specially puzzling is their liability to hybridization, whereby the characters of one species become almost hopelessly mixed up with those of other species. This is specially true of the willows, a group on which Dr. Buchanan White became one of the leading British authorities. In collecting material for the Monograph which he published on the subject, he received valuable assistance from Charles Macintosh. In the *Flora*, no less than eight extremely rare hybrid willows are recorded as having been got by him, mostly by the side of the Tay between Dunkeld and Logierait. In some cases, his are the only Perthshire records. Only a botanist can appreciate the amount of careful and painstaking observation these statements imply. The

work he was doing during his wanderings by the river side was really pioneer work, although his modesty probably prevented him from realizing this at the time. With regard to the roses, Dr. White, in the *Flora*, draws special attention to the valuable work done by Mr. Macintosh round about Inver. Of the different forms of Bramble (*Rubus*), he found no less than eight species around Inver, Birnam, Dunkeld and Dalguise, some of them rare, and all difficult to differentiate.

It may be mentioned here that, for the purposes of the *Flora*, Dr. Buchanan White divided the county of Perth into thirteen different districts, five of which were within the Highland area of the county, and the remaining eight within the Lowland area. The line of demarcation between the Highland and Lowland areas is practically the line of geological displacement known as the "Great Fault." The subdivisions, on the other hand, are founded on the river systems. The following are the names which Dr. White gave to these districts :—

Lowland.—Forth, Earn, Perth, Isla, Gowrie.
Highland.—Forth, Earn, Perth, Isla, Lomond, Breadalbane, Rannoch, Atholl.

Of these districts, the ones in which Macintosh did most of his collecting were Highland Perth

and Breadalbane, on the right bank of the Tay, and Highland Isla on the left bank, although he sometimes worked down to Lowland Perth on the right bank and Lowland Isla on the left bank. The portions of these five districts which lie nearest to each other, or, in other words, the region within a radius of five miles from Dunkeld, form a remarkably rich botanical area, embracing, as it does, moorland, woodland, arable land, wooded glens, and river haughlands and shingles. There was hardly a foot of this varied region which Charles had not visited at one time or another, and at all seasons of the year, for his fourscore years had been practically all spent within that magic circle.

In addition to the four genera to which reference has already been made, Charles Macintosh discovered many rare and interesting flowering plants in the course of his wanderings. Amongst these may be mentioned the Wood Nasturtium (*Nasturtium sylvestre*), near Birnam station; the Creeping Cinquefoil (*Potentilla reptans*), at Dalguise; the Sweet-scented Agrimony (*Agrimonia odorata*), at Inver; the Hedge Bedstraw (*Galium Mollugo*), also at Inver; a variety of the Field Sow-Thistle (*Sonchus arvensis*, var. *laevipes*), in Strathbraan; the Goatsbeard (*Tragopogon pratensis*), by the railway at Guay; the

One-sided Winter-green (*Pyrola secunda*), on Craig Vinean; the Bird's Nest Orchid (*Neottia nidus-avis*), at the Rumbling Bridge; the Whorled Solomon's Seal (*Polygonatum verticillatum*), near Inchmagranachan; the Lily of the Valley (*Convallaria majalis*), at Dalpowie; the Yellow Star of Bethlehem (*Gagea lutea*), near Inver; and the White Wood-rush (*Luzula albida*), at Dunkeld. These last five are all very local, and rare in Scotland. Naturally, Charles Macintosh did not particularize the localities too minutely, lest they should become rarer still. In addition to these conspicuous and beautiful flowers, he added to the local flora a number of the less common grasses, such as the Millet-Grass (*Milium effusum*), the rare Reed-Grass (*Calamagrostis epigeios*), which he got by the side of the Tay near Inver, but which has since been washed away by the river, the Hair-Grass (*Aira caryophyllea*, var. *aggregata*), the Hairy Oat-Grass (*Avena pubescens*), and the Wood Fescue-Grass (*Festuca sylvatica*), another rare species, which he found in the woods near the Rumbling Bridge. In addition to sending data for the *Flora*, Charles Macintosh supplied a large number of specimens of dried plants for the Herbarium of the Perthshire Natural History Museum. As early as

1880 Dr. Buchanan White wrote and thanked him for his offer of a collection of dried flowering plants of his district. This was the first of many similar contributions he sent from time to time. His specimens were always carefully prepared and mounted and correctly named.

Not only has Dr. White's *Flora of Perthshire* been enriched by Charles Macintosh's records, but the same may be said with equal truth regarding the excellent handbook of the district prepared by the late Mr. Charles McLean, of Dunkeld, entitled *Dunkeld: Its Straths and Glens, or Central Perthshire, Historical and Descriptive.* This little book, which is much above the average of such local guides, has gone through several editions, and is now out of print and difficult to procure. It contains a number of botanical notes, all of which were supplied by Charles Macintosh. These are given under the headings of the various beauty-spots around Dunkeld, which are described in the form of an itinerary. Thus there are descriptions of the floral treasures of the Hermitage Grounds, the Rumbling Bridge, Craigie Barns, Loch Cally, the Den of Reichip, Loch Clunie, etc. Some of these treasures have already been referred to, as recorded in White's *Flora*, but, in addition, mention is made in McLean's hand-

book of the Winter-green, the Globe-flower, the Golden Saxifrage, the Lily of the Valley and the Milkwort at the Hermitage Falls; the Bird's-nest Orchid, the Grass of Parnassus, the Chickweed Winter-green and the Mountain Everlasting at the Rumbling Bridge; the Bearberry and the Shining Crane's Bill on Craigie Barns; the White and Yellow Water-lilies on Cally Loch; the three Club-mosses on Birnam Hill; the Crow Garlic in the Den of Reichip; the Pillwort, the Quillwort and the Water Lobelia in Clunie Loch, etc.

Charles Macintosh was always interested in problems of plant distribution.[1] He noted any changes which took place in the flora of his district, either by the crowding out of older native species by the introduction of more vigorous aliens, or by the destruction of species through natural causes, such as floods, storms, change of the courses of streams and rivers, etc., or by the intervention of man in such processes as drainage, afforestation, cultivation, or reclamation of waste lands. He was also interested in problems of acclimatization, especially in regard to the introduction of useful or

[1] One of his favourite books was an old volume entitled *Flora Americanæ Septentrionalis*, by Frederick Pursh, published in 1814, which he made use of to compare the species of the New World with those of the Old.

ornamental trees. Few objects in Nature kindled his enthusiasm more than did the magnificent forest trees for which his native district is famous, and he always resented any injury done to them. On one occasion, for instance, when he was on a visit to his sister at Inverness, he wrote indignantly on the impropriety of fixing telegraph and telephone wires to living trees, almost as though the trees could feel the indignity put upon them. In the same way he resented bills being nailed to living trees. No subject interested him more than the diseases of trees, and the natural enemies that attack them, and his researches in this direction have been of considerable service to arboriculturists. Perhaps his most important researches in this direction were in regard to the fungus which causes the Larch disease, which will be referred to later, but in many other ways he made observations which have been of use to practical foresters.

Perhaps one reason why Charles Macintosh took such special interest in trees is that few regions of the country are more famous for its sylviculture than the lower stretches of the district around Birnam and Dunkeld. This is due to a variety of causes, geological, topographical and climatological. The soil is rich, varied and

deep, representing the material brought down from the Highland straths and glens by glaciers and streams which were dammed up at the Pass of Birnam, and the district is protected by the amphitheatre of hills which surround it on every side, and which, at the same time, ensure a sufficient rainfall. Reference has already been made to some of the more famous trees of the district, such as the Parent Larches of Dunkeld, the last trees of Birnam Wood, and Neil Gow's Oak. Another famous example is the "Hangman's Tree," at the foot of Birnam Hill, which recalls the days of the "Heritable Jurisdictions," when the Laird had the power of life and death over his tenants and dependents. The judicial function of the superior was, as a rule, deputed to the Baron Bailie, and not infrequently the latter sent delinquents to the Hangman's Tree for offences which, to us, would seem trivial indeed. In connection with Birnam Wood, it is interesting to note that, early in the sixteenth century, "for forty shillings a year, Bishop George Brown (1484–1519) purchased from the king the forest and lands of Birnam, the wood and lands of Logie, and every privilege they had." (Miln's *Lives of the Bishops of Dunkeld.*) These lands have been subject to some increment, earned or unearned, since then!

The parks immediately around Little Dunkeld Parish Church contain some remarkably fine old specimen trees. Amongst these is a massive and symmetrical Sycamore, known as the "Bumming Tree," from the constant humming of the bees attracted to it in summer; an old oak by the entrance to the church, which has given way since Macintosh's death; a beech, with very wide-spread branches, and a row of very tall limes. Charles used to point out these trees with pride on his almost daily walks between Inver and Birnam. Another group in which he took special pleasure was a row of three or four large Spanish Chestnuts by the bank of the Tay, just below Inver, whose trunks were scored with spiral grooves in a remarkably symmetrical manner. Other trees, such as a specially fine Cedar of Lebanon and Hemlock Spruce, in the Hermitage Grounds, he describes in McLean's Handbook.

Leaving these lords of the vegetable kingdom, we come lastly to the humbler growth beneath their shade, the ferns, which had so early attracted Charlie Macintosh's attention, and for which he never ceased to have a special affection. Here, again, the locality offered peculiarly favourable conditions, and the fern flora was rich and varied. Charlie made several col-

lections of dried specimens, to give to his friends and to different institutions, but what he loved best was to bring the living plants home and plant them in his rockery at Inver, where he soon had a most interesting collection. Some of the ferns of the district he describes in McLean's Handbook, such as the Oak, Beech, Prickly Shield, Mountain Buckler, Lady Fern, Green Spleenwort and Common Maidenhair Spleenwort, in the Hermitage Grounds; the Black Maidenhair Spleenwort and the Wall-Rue on Craigie Barns; the Parsley Fern and Hard Fern on Birnam Hill; and others, less common, which discretion forbids us to mention. Ferns may be said to have been his delight in youth, and his joy in old age, for they were the first group whose study he took up, and his pleasure in them never abated.

CHAPTER XI

AS A BOTANIST

2. Among Fungi, and other Flowerless Plants

Flowering plants, as we saw in our last chapter, are reproduced by means of seeds. Flowerless plants, or, to give them their botanical name, Cryptogams, are reproduced by means of less highly organized bodies known as "spores." They represent an earlier stage in the evolution of plant life. In addition to the Ferns, which we have already dealt with, the other divisions of the Cryptogams, on a broad classification, are the Mosses, the Lichens, the Fungi, and the Algæ, or Seaweeds. All of these, with the exception of the ferns, and some of the mosses, are simple cellular plants, in which continuous vessels and fibrous tissues have not yet been developed. We will take the Fungi first, as they were the class to which Charles Macintosh devoted most time and attention.

Fungi.

We have seen that Charles Macintosh began his botanical pursuits with the study of ferns, and although he devoted his energies to the flowering plants and grasses immediately afterwards, yet his interest in the Cryptogams never waned. In 1872, when he first met Dr. Buchanan White, he had already begun to collect fungi. Dr. White, at this period of his life, was engaged in exploiting the fungi of the county of Perth, and he quickly recognized in Macintosh one who was likely to be of valuable service to him in this work. He was, as we have learned, a frequent visitor at the little cottage at Inver during his residence in the locality, and he and Macintosh spent many hours in the examination and identification of the fungi which the latter collected in the course of his rambles. Some of the results of these investigations are seen in the *Preliminary List of Perthshire Fungi* which Dr. White published some seven years later, and in which Inver frequently figures as the locality for certain species.[1]

In 1875, as already related in the biographical chapters, Charles Macintosh was an exhibitor at the great Fungus Show held at Perth in that year. From the records of the show we learn

[1] See *Scot. Nat.*, Vol. V., pp. 173, etc.

From Drawings by Mrs. Carleton Rea.

FOUR FUNGI (BASIDIOMYCETÆ), DISCOVERED BY CHARLES MACINTOSH, NEW TO BRITAIN.

that his exhibit attracted a great deal of attention, as it contained specimens of the beautiful golden-coloured fungus, *Pholiota aureus*, variety *Vahlii*, which had not hitherto been found in Britain, and also *Hydnum zonatum*, a rare species of the family in which the gills, as seen in the common mushroom, are replaced by teeth. Along with these he showed a gigantic specimen of the Oak Fungus, *Daidalea quercina*, a woody fungus found on dead branches of oak. This specimen was fully two feet in length. After the show, the Rev. J. M. Berkeley wrote to Dr. White expressing a strong desire to see specimens of the fungus which Charles Macintosh had added to the British fungus flora, but it was some years before the latter was able to secure more specimens.

As already described, Charles Macintosh also took a prominent part in the second Scottish Fungus Show, which was held in Dunkeld in October, 1877, and exhibited a number of interesting specimens.

A good deal of dubiety exists as to what literature on the fungi he had at this time. In 1873 he wrote to Dr. Buchanan White inquiring if there were any books on the subject in the library of the Perthshire Society of Natural Science that he could borrow, but Dr. White

replied that there were none at that time. He said that if Macintosh would collect all the fungi he could, growing on wood, leaves, etc., he would get them named for him, but their subsequent correspondence does not show that he acted on this suggestion. It was probably owing to want of literature on the subject that he did not make very much progress with the fungi for the next twelve years.

In 1887 he came into possession of J. M. Berkeley's *Outlines of British Fungology*, and in the same year a friend presented him with a copy of Stevenson's *British Fungi*, which had been published in the previous year. The possession of these two books gave him a great deal of pleasure, and it is evident that they gave a fresh impetus to his study of the fungi, for all his notes on the subject date from this period onward. His studies, however, were still confined almost entirely to the more conspicuous forms, known as the Basidiomycetæ. For the sake of the non-scientific reader we may explain that to this division of the fungi belong all the mushrooms and toadstools, in which the spores are borne at the apex of minute club-shaped bodies, called the "basidia." These basidia, in certain families, such as the mushrooms, form a close covering to the gills on the

under side of the cap. In other families, such as the hard or tough fungi, the *Polypori*, which grow on dead trees, they line the narrow pores which are found on the under side of the fungus. In yet other families they are found covering the teeth which take the place of gills in certain fungi.

For the next twelve years, from 1887 to 1899, Charles Macintosh pursued his investigations almost entirely alone. The advent of autumn, when fungi are most in evidence, was a time he always looked forward to with eager anticipation. Then the tall figure, clad in homespun, with the fishing-basket slung over his shoulder, might often be met with, as he tramped over every part of his domain, visiting pine-woods, deciduous plantations, moorland hillsides, charcoal and sawdust heaps, and *sphagnum* swamps. His specimens secured, and others, not yet fully developed, noted for further observation, he hied home to the cottage in Inver, where a busy evening would be spent with microscope and books of reference. The identification of the more obscure and critical species of fungi is by no means an easy task, as those who have undertaken it can testify. Sometimes, though not often, a more than usually puzzling specimen would be sent to the Rev. John

Stevenson, at Glamis, for elucidation, but only after all sources of information at hand had been exhausted.

In the systematic exploration of his locality, year after year, Charles Macintosh gradually came to have an extensive knowledge of the fungi belonging to the Basidiomycetæ, and the conditions under which they occur. In the course of his quest he discovered some rare species, of which four were new to British mycologists. He had also a fund of information regarding the effects of weather conditions on the occurrence of fungi. The disappearance of certain species, sometimes for many successive years, and their reappearance on the same spot, presented problems which interested him greatly. One particular incident of this kind he used to relate regarding a rare species which he had discovered under a certain tree. Year after year he sought for this particular plant, but no trace of it was to be found till ten seasons had elapsed, when it came up again as luxuriantly as ever.

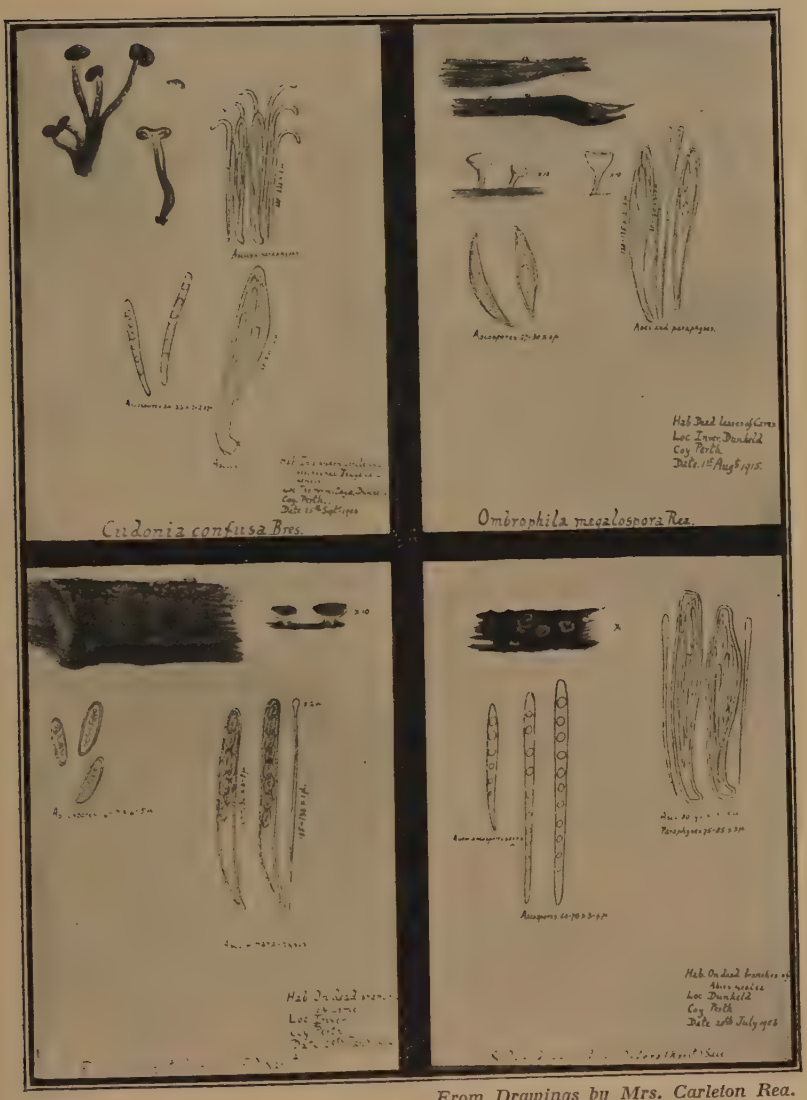
It was in 1899 that Charles Macintosh first met Mr. James Menzies, of Perth. The occasion was an excursion of the Perthshire Society of Natural Science, and the place Birnam Glen. The meeting was a memorable one, for not

only was it the beginning of a lasting friendship between the two naturalists, founded on common interests and mutual respect, but it was the means of directing Macintosh's studies into new channels. A constant correspondence and exchange of specimens was kept up between the two until Macintosh's death, some twenty-two years later. When they first met, Mr. Menzies had not long taken up the study of fungi, but he soon became an accomplished mycologist.

Every autumn after this first meeting, Mr. Menzies spent at least one day at Inver with his friend, when some outlying part of his district would be ransacked, generally with the result of adding some new species to the fungus flora of the county. With a kindred spirit, such as Mr. Menzies was, Charles Macintosh was at his best, and on these joint excursions the somewhat reticent old Highlander gave free play to his thoughts and experiences. On rare occasions he visited Mr. Menzies in Perth, generally at New Year time, when most of the day would be spent at the Natural History Museum, examining specimens in the Herbarium, or in the library of the Perthshire Society of Natural Science, consulting books in the reference department, or selecting others that he wished to borrow.

Some time in 1906, Mr. Menzies bought a copy of Massee's *British Fungus Flora*, in four volumes, and despatched it to Inver for his friend's inspection. Almost by return of post he received a note from Mr. Macintosh enclosing a remittance for the purchase price of the book, saying that he was going to keep the copy, and that Mr. Menzies could buy another for himself!

With the help of this new *Fungus Flora*, Macintosh was enabled to make himself acquainted with two other groups of fungi of which he had hitherto had only a slight knowledge. The first of these embraces what are known botanically as the Hyphomycetæ, or, in more popular language, the moulds. Individually, these fungi are very small, but, growing in dense masses, they present the appearance of a fine velvety growth on dead plants or animals. The spores are not enclosed in any way, but are borne naked, on, or at the apex of, fine thread-like bodies. The blue-green mould which is so common on decaying fruit, on the top of preserves, and on certain kinds of cheese, is a typical example of the group. These moulds interested Macintosh perhaps less than any other order of the fungi, and although he collected and examined them as opportunity



From Drawings by Mrs. Carleton Rea.

FOUR FUNGI (DISCOMYCETÆ), DISCOVERED BY CHARLES MACINTOSH.

Three new to Britain, and one (*Ombrophila megalospora*, Rea) new to Science.

offered, he left no notes or memoranda regarding them.[1]

The other group of fungi which Massee's *Fungus Flora* opened up to him was the Discomycetæ, popularly known as the "Cup Fungi," because, at maturity, many of them present the appearance of a cup or saucer. In this group the spores are enclosed, until maturity, in sac-like bodies, known as "asci," which frequently form the greater part of the fungus. Although varying greatly in size, the majority of the cup-fungi are very minute. Their study can only be undertaken with the aid of the microscope, as the size, shape, and distinctive characters of the spores afford the most important means of identifying the species.

Charles Macintosh possessed a good botanical microscope, with micrometer, and became highly skilful in the use of it. He had consulted Dr. Buchanan White as to the selection of an instrument in 1885, but it was two years later before he actually purchased one. The delay may have been dictated by financial considerations, for naturally he would want to have a really good one when he did get it. Before this he had an old-fashioned microscope,

[1] One of the books in his library which he consulted was *Microbes, Ferments, and Moulds*, by E. L. Trouessart.

which was quite good for general botanical work, but not powerful enough for the critical examination of the spores, or reproductive bodies, of minute fungi. The acquisition of the new microscope in 1887 may be said to mark the beginning of his serious scientific study of the fungi. "After that," as his brother James remarked to the present writer, "the microscope was always on his table, and he was never done working with it." In his library was an old book on *The Microscope*, by Hogg, which he frequently consulted.

Some three years after the purchase of Massee's *Fungus Flora*, that is, in 1909, Charles Macintosh collaborated with his friend Mr. Menzies in the investigation of these Cup Fungi, or Discomycetæ, as represented in the county of Perth, as these had not previously received so much attention from Dr. White and other fungologists as the more conspicuous groups. Macintosh undertook to work up those in his own locality, and when, in 1920, a list of the species, by Mr. Menzies, was published in the *Transactions of the Perthshire Society of Natural Science*, that list showed how assiduously Macintosh had laboured. In the course of his quest he had been able to add six species new to Britain, and two new to science. His work

amongst these diminutive fungi was the more remarkable when we remember that much of it was done when he was between seventy and eighty years of age, that his eyesight had begun to be impaired, and that his manipulation of the microscope was limited to one hand.

Mr. Menzies, in the paper just referred to, bears testimony to Macintosh's careful and accurate work. All the specimens the latter gathered were sent to him, and were invariably accompanied by a description of the plant as seen through the microscope, with a rough diagram showing its distinctive features, and accurate measurements of the asci and spores. In the identification of his fungi, he was difficult to satisfy, and slow in coming to a conclusion, but unyielding when once he had made up his mind. Mr. Carleton Rea, to whom all the more critical specimens were sent for identification, bears similar testimony. In sending me the note which appears in the second appendix, he says: "I certainly was much impressed with his knowledge of our fungi, and considered that his microscopic examination of the same was very reliable and most excellent considering the heavy handicap he had from his bodily infirmities."

About 1908, while on one of his rare visits

to Perth, his attention was called to a copy of Cook's *Handbook of British Fungi*. After looking over the book, he borrowed the second volume, and this was the means of adding another order of the fungi to his quest. These were the Pyrenomycetæ, which differ from the Discomycetæ in having the asci and spores enclosed in special receptacles, known as "Perithecia." They occur largely on dead wood, herbaceous stems, and the dung of certain animals, while quite a number are parasitic on living plants, and the larvæ of insects. In the extensive woods around Inver and Dunkeld, Macintosh found a rich hunting ground for these fungi, and, in addition to discovering some rare species, he was able to add three species new to Britain, and two new to science.

Amongst the species of Pyrenomycetæ new to Britain that he discovered was one which is of special importance both to arboriculturists and to phyto-pathologists. This was the fungus known as *Cucurbitaria pithyophila*, a parasite on the Scots Pine. In a note which he sent to the Perthshire Society of Natural Science in 1908, along with specimens of the fungus, he described the finding of this species, and its effect on the trees attacked. He first found it in May, 1907, on the stems and branches of

newly-cut pine-trees, thirty-five or forty years old, in the Inver woods. He sent the specimen to Mr. Carleton Rea, who identified it as *Cucurbitaria pithyophila*, but was unable, at the time, to say whether or not it had previously been recorded as occuring in this country. It appears to be confined to the bark of the tree, which it kills. Where the fungus has completely ringed a stem or branch, the latter soon dies. The bark on which it grows becomes swollen, and there is an outflow of resin, which soaks both the bark and the wood underneath. It appears also to give rise to fascicles of twigs and branches, similar to the " Witches' Brooms " which occur on various trees.

When the dead trees in the Inver woods were being cut out, in 1908, it was found that a considerable proportion of them had been ringed by the *Cucurbitaria*, although many had been killed by the attacks of other fungi. When the former were carefully examined, it was evident that the *Cucurbitaria* had, without doubt, caused the death of the tree. Many of the pine-trees in these woods have divided and fasciculated tops, and they are often abnormally branched. It is possible that in these cases, although no *Cucurbitaria* is visible, its mycelium may be present.

From the Annual Report of the Perthshire Natural History Museum for 1910–11, we learn that in that year Charles Macintosh presented to the museum Herbarium a collection of no fewer than 177 species of these fungi, the Pyrenomycetæ; and the numerous notes and memoranda amongst his papers referring to this group show that he devoted much time to their study and identification.

Living quite near the headquarters of the forestry department of the Atholl estates, and being in constant touch with the head forester and his assistants, Charles Macintosh's help was often sought in the identification of fungi affecting trees on the estate, especially the conifers. That help was given at all times ungrudgingly, and the diseases of trees came to be a subject of special interest to him. In particular, he devoted much time to the study of the Larch disease, and, in 1898, he communicated the results of his investigations to the Perthshire Society of Natural Science. In the course of this paper, he said that it was more than thirty years since the Larch was found to be suffering from the attacks of a small insect known as the aphis, causing blistering, malformation and, ultimately, destruction of the tree. During the winter months, the insects are to be seen in a

dormant or inactive state on the twigs and branches, especially about the knot-like buds, while in spring they become active, spreading over the leaves when these appear. On the leaves they deposit a cluster of eggs, each egg being attached by a fine silk-like thread. From the eggs, brood after brood appears during the summer months. The effect of the working of these insects on a Larch is that much bleeding of resin takes place, the quantity exuded by badly-affected young Larches being so great that a person could not pass through a young plantation without having his clothes besmeared. The stems, branches and twigs, especially of young Larches, become deformed with swellings and resin-smeared blisters, and on the swollen blistered parts a very small cup-shaped fungus makes its appearance. This fungus, which is known as *Lachnella calycina*, is a small Discomycete, belonging to the family Peziæ. Whether it was the aphid or the fungus, or the effects produced by both in conjunction, which actually caused the disease and death of the tree, he was unable to determine.

A further development of these investigations regarding the causes of the Larch disease brought out an interesting illustration of what has been called the " Web of life," or the interdependence

of different phases of life on each other. When the disease was at its worst, and when the planting of Larch on the Atholl estates had to be partially discontinued, Macintosh noticed a marked increase in the number of insect-feeding birds in the district, especially the Great Tits, the Cole Tits, the Blue Tits, the Long-Tailed Tits and the Gold Crests. As these birds increased, he noticed that the aphis plague on the Larches gradually abated, and with the aphis the fungus disappeared also. He had no hesitation in attributing the comparative immunity of the plantations from disease in recent years to the activities of these little birds, which were specially busy during the winter months destroying the young broods of the insects.

In these complex investigations Charles Macintosh's skill as a botanist, his expert knowledge as a fungologist and his experience as an entomologist and ornithologist all came into play, and enabled him to be of considerable service to the foresters of the district.

Another group of disease-producing fungi to which Macintosh turned his attention were the Uredineæ, or "Rust Fungi." These are parasitic on the tissues of higher plants, and are found especially in the leaves, where they produce the disease known as "Rusts," the com-

mon rust of wheat being a typical example. The life-history of these rusts is often very complicated. One stage of existence may be passed as a parasite on one plant, and another stage as a parasite on a plant of quite a different family. Macintosh found much interest and pleasure in the study and investigation of these rusts, but with them his work among the fungi came to an end. When, about two years before his death, he handed over his collection of Uredineæ to the Perthshire Natural History Museum, "Finis" might have been written to his mycological labours.

Mosses.

As far back as 1873, Macintosh borrowed from the library of the Perthshire Society of Natural Science a book on mosses, and this is the first indication we have of his interest in this class of Cryptogams. Dr. Buchanan White, in forwarding the book, gave him some advice on the collecting and study of mosses. From this time onwards it may safely be said that his interest in these plants never flagged. They are at their best in spring, when fungi are not abundant, and thus he was able to devote a considerable amount of time to them, and he acquired a wide knowledge of those which occur

in his native district, although he did not succeed in adding any new species to the British moss-flora, as he had done in so many cases in regard to the fungus-flora. Several of those he found around Inver, however, were both rare and interesting, including the following: *Seligeria recurvata*, B. and S.; *Dicranella crispa*, Schp.; *Tortula princeps*, De Not.; *Barbula Hornschuchiana*, Schultz.; *Helicodontium pulvinatum*, Lindb.; *Pylaisia polyantha*, B. and S.; *Hyocomium flagellate*, B. and S.; and *Hypnum dilatatum*, Wils.

When friends and visitors interested in mosses came to see him at Inver, he was always delighted to show them the treasures of his locality, but was best pleased when they showed moderation in taking specimens of interesting species, such as the Extinguisher Moss, *Eucalypta streptocarpa*, Hedw., which grew in the district, and which is very rarely found elsewhere in the fruiting condition. His investigations, however, were not confined to the country around Inver and Dunkeld. When he went to visit his sister in the north, he spent many hours around Strathpeffer, Inverness, and the Black Isle, looking for rare species, the records of which he sent to his friend Mr. R. H. Meldrum. Mr. Meldrum informs me that most

of Macintosh's moss collecting for Dr. Buchanan White was done in the early eighties, while for Mr. Meldrum himself he collected both mosses and hepatics from 1900 onwards. Many of the specimens he secured are included in the collections which Mr. Meldrum prepared for the Perthshire Natural History Museum, while the records are embraced in the lists published by the latter in the *Transactions of the Perthshire Society of Natural Science*, where he acknowledges the assistance he had received from Mr. Macintosh in working out the moss-flora of the county. He had in his library one or two of the older books on British mosses, as well as M. C. Cooke's *Handbook of British Hepaticæ*, which he got in 1899. Besides the specimens which he sent for the Perth Museum, he prepared a small collection for the Birnam Institute, and another for the School of Forestry which was established in the district for some time after the war.

Lichens.

Charles Macintosh had from time to time turned his attention to the Lichens, and possessed a considerable knowledge of those found in his locality. In this pursuit, however, he was hindered by the lack of suitable literature

on the subject. He had an old *Popular History of British Lichens*, by Dr. Lauder Lindsay, of Perth, published in 1856, and often complained of the want of a really good up-to-date lichen flora.

Algæ.

In 1885, about the time that Charles Macintosh came into the possession of his new microscope, Dr. Buchanan White wrote to him suggesting that he might then, with the aid of the microscope, take up the investigation of the freshwater algæ of his locality, and this he began to do shortly after.

For the benefit of the non-scientific reader, it may be explained that some of these plants—which belong to the same class of Cryptogams as the familiar sea-weeds of the seashore—are very simple in their structure, consisting of but a single cell, while others are much more highly organized. They occur in streams, in stagnant waters, on the bark of trees, on damp earth, etc., generally as a green scum.

Mr. Macintosh seems to have given the algæ a great deal of his attention, as amongst his papers are many memoranda, rough sketches and drawings of the microscopical structure of specimens he had collected. He had also

mounted a large number of sections as microscopical slides, but unfortunately the medium used in their preparation gave way, and his labour was lost. He consoled himself, however, for this misfortune by the reflection that the knowledge he had acquired of these plants during the course of their preparation could not be destroyed, although his handiwork had come to grief.

It will be seen from the foregoing chapter that Charles Macintosh came to have a fair working knowledge of all the five great classes of the Cryptogamia, including the five principal orders of the Fungi. This was no mean achievement for a botanist who was entirely self-taught, whose means of procuring books and apparatus were so slender, and who was physically so severely handicapped. Only his indomitable spirit and unbounded enthusiasm could have triumphed over these difficulties.

CHAPTER XII

AS A LOVER OF BIRDS AND BEASTS

Although the beasts should have come first in the title of this chapter, we will take up the consideration of the birds first, as they occupied the largest share in the attention of Charles Macintosh. We may first remind the non-zoological reader that the Class *Aves*, or birds, constitutes the second of the five primary groups into which all vertebrate or backboned animals are divided; the others being the mammals, the reptiles, the amphibians and the fishes. There is no group so well defined as the birds, and none of which we can trace the ancestry and development so clearly. In the rocks of Solenhofen the link which connects the modern birds with the more primordial reptiles is depicted as clearly as if it had been delineated on purpose for our enlightenment.

Charles Macintosh was always interested in birds, and took great pleasure in studying their

habits, nesting, migrations, feeding, seasonal changes, etc. He was not a bird collector, for he could not bear to take the lives of the creatures he loved. Indeed, the only specimen in the bird collections of the Perthshire Natural History Museum that came from him was a Storm Petrel, which he picked up dead on the Games Park, Birnam, on November 24, 1916, after a severe storm. The only weapons he carried on his ornithological excursions were his field-glasses and his note-book, yet with these he was often able to gather information which he could not have got had he scared off the birds with a gun. The birds, indeed, seemed to know that they had nothing to fear from him, and would often answer his skilful imitations of their calls. As we have already seen, his musical ear assisted him greatly in identifying the songs of the different species, and the varying notes they produced at different seasons. He had not many books of reference to assist him in his study of the birds, but one that he treasured was *Our Rarer Birds*, by Charles Dixon, published in 1888. His knowledge of birds he had gained almost entirely at first hand.

The results of Charles Macintosh's observations of bird-life have been preserved in two

publications—in various notes and papers scattered throughout the *Transactions and Proceedings of the Perthshire Society of Natural Science*, and in the *Vertebrate Fauna of the Tay Basin and Strathmore*, by the late J. A. Harvie-Brown, F.R.S.E., F.Z.S., published in 1906. We will take these in their order, beginning with the papers communicated to the local Society.

In February, 1898, some years after he had retired from the postal service, he read[1] a paper entitled *Notes by a Naturalist round Dunkeld*. This paper contained the results of a number of original observations made by him on "The Larch Disease," on "The Raven," "The Rook," and "Some Birds of the District." Regarding the Raven, he notes with regret that, owing to the activities of the gamekeepers, it had ceased to nest in the locality. From late autumn to spring, however, it is frequently to be met with in the district. For a number of years he had seen a pair crossing the valley from Craigie Barns towards Birnam Hill almost every morning and evening, and a pair, or sometimes two pairs, might be seen

[1] It is not strictly correct to say that the paper was "read" by him, for I do not recollect his ever having been present at any of the Winter Meetings of the Society in Perth, although he was a constant reader of its publications, and supported its activities in every way he could. His papers and notes were read by one of the members present.

almost any day hovering between Craigie Barns and Craig Vinean. Among other birds that at one time had nested in the district, but are now rarely to be seen, he noted the Common Falcon, the Buzzard, the Kite, or "Gled," and the Magpie. For the disappearance of these handsome and interesting birds he blames the gamekeeper also, but remarks that the Jay, though subjected to a similar persecution, manages to hold its own. With regard to the Rook, he says that many people do not know that this bird does not roost in its nesting place, unless during the breeding season. He had noticed that the Rooks and Jackdaws which nest about Dunkeld House generally met there towards the close of the day, and, after a lot of cawing and aerial evolutions, left the trees, the Rooks and most of the Daws betaking themselves down the valley, and a small flock of Daws going up the valley. The evening meeting did not always take place, but with daylight the Daws arrived at the usual meeting place, followed by the Rooks about five minutes later. The Rooks always followed the same track, passing the Episcopal Church and Birnam Hotel, flying over Little Dunkeld Church park, and crossing the river above the bridge, but sometimes resting on the trees on the south side; then, after

a great "palaver," betaking themselves to their feeding grounds. On misty or foggy mornings, or with contrary winds, they flew close to the ground, but when the weather was fine, and visibility good, they kept at a greater elevation. I think this recital of the peregrinations of the Rooks and Jackdaws will serve to illustrate what a keen and careful observer our old naturalist was.

In his *Notes on the Birds of the District*, he divides them into summer migrants, semi-migrants, moor birds and river birds, which is an unconventional but perfectly natural classification. Under the first two headings he gives the dates of arrival of each species, compiled from observations made over a considerable period of years, and recorded in the little pocket diaries which he carried about with him, and which have been carefully preserved. The summer migrants comprise the Sand Martin, the House Martin, the Swallow, the Swift, the Willow Warbler, the Wood Warbler, the Sedge Warbler, the White Throat, the Red Start, the Tree Pipit, the Wheatear, the Whin-Chat, the Spotted Fly-Catcher, the Blackcap and the Chiff Chaff. The Blackcap, he says, is not often seen, but a pair, with a young brood, once appeared at Inver, and remained for some

days about the gardens. Of the Chiff Chaff, he says that for two seasons a bird of the warbler kind appeared, frequenting, for the most part, tall spruce and beech trees, but taking an occasional turn on willow and other bushes. Its peculiar call went on unceasingly—"Chiff, Chaff, Chief." It resembled the Wood Warbler in its movements and general appearance, but its colours were not nearly so bright.

Under the head of semi-migrants, he includes the following seven species. The Pied Wagtail—most of these leave the district, but a few remain all winter. The Grey Wagtail leaves the district entirely, but returns in spring. The Meadow Pipit and Lark leave the district, but remain in the country. They return at the end of March. The Common Bunting does not appear to range beyond Murthly. The Black-headed Bunting leaves the district, but returns in spring. The Song Thrush, or Mavis, is practically a migrant in this part of Perthshire, leaving the district about the end of October. In a few favoured spots, solitary birds may be seen throughout the winter, and it is not unlikely that it is these birds that are heard singing, sometimes three or four weeks before the general arrival occurs. The weather appears to affect the migration of the Song Thrush more than

some of our other migrants that journey to more distant parts. He notes having first heard them singing in various years on dates ranging from January 24th, in 1890, to March 7th, in 1895. The general arrival was always some days, or even weeks, later, especially in cold seasons.

The moor birds, which include the Golden Plover, the Grey Plover and the Lapwing, arrive in spring. The following are what he describes as the river birds. The Oyster Catcher, or "Sea Pie," appears with the Lapwing in February and March, and the Black-headed Gull almost on the same date. The Common Tern does not appear till April or May. Of the Ring Plover, a few rest on the river shingles about Dalmarnock. The Sand Pipers begin to arrive up the river in April. A few of the Lesser Black-backed Gulls are to be seen along the banks of the Tay all winter. They seem to be attracted to the district, and kept in it, by the number of salmon that die from the effects of the salmon disease. Among the birds which are occasionally found in the district he mentions the Little Awk, the Guillemot, the Razorbill, and the Storm Petrel.

In 1913 he sent to the Society an interesting Note on the mating habits of the Ring Ouzel.

He describes how a solitary male of this species arrived at the Ladywell Nurseries, not far from Inver, about the end of March, 1912, and began making advances to a female Blackbird, which is a closely allied species. In the following season it appeared again at the same spot, and again began paying attentions to the lady Blackbird. Unfortunately, a late snowstorm came on about this time, April 10th or 12th, and Mr. Ouzel had to beat a hasty retreat, leaving his lady friend behind. This Note depicts an incident of most unusual occurrence.

The influence of animal and plant life on one another, or of one form of animal life on another, was a subject which always interested Macintosh greatly. One instance of the latter he gives in a Note entitled *A Plague of Caterpillars*. He describes how, in the summer of 1913, a visitation of caterpillars did immense damage to the wooding in the Dunkeld district. The oak coppice woods, extending for several miles along the Tay Valley, from Inver to Dalmarnock, were stripped bare of their leaves, and the caterpillars were to be seen in enormous numbers crawling over the leafless twigs and branches, or dangling from them by the threads they spin, or crawling over the ground under the trees from which they had fallen. These cater-

pillars were at once attacked by a host of birds of various species, among which Black-headed Gulls were the most numerous and the most active. Some of them picked up the caterpillars that were crawling on the ground, but most wheeled about on the wing, many of them seeming, as they did so, to catch up the caterpillars that were suspended from twigs and branches. Of the other birds which assisted at the feast the most conspicuous were the Rooks, Jackdaws, Starlings, Pheasants, Warblers, Cuckoos and Woodpeckers. He remarks that it is wonderful how soon the oaks get over such an attack. In a short time a new set of leaves is put forth, and the trees look not much the worse of the attack. Nature's powers of recuperation are indeed remarkable.

Another Note that he sent to the Perthshire Society was on *The Black-headed Gull at the Scottish Horse Camp, Inver, in Winter Plumage*. This camp occupied a large park between the Braan and the Tay, and was laid out for the use of the Scottish Horse, the regiment of yeomanry raised by the present Duke of Atholl—then Marquis of Tullibardine—during the South African War. A large flock of Black-headed Gulls took up their abode about the camp. They came early in the spring of 1915,

being then in their summer plumage, and they continued to frequent the camp till about the 15th December in the same year, although the Braan was then often covered with ice. The latter end of December was milder; there was a heavy rainfall, with flooding of the rivers, and then the Gulls left. The peculiar thing was, however, that never before, so far as Macintosh was aware, had the Black-headed Gull been seen in that district in its winter plumage, with the head white. It almost looked as if they were going to winter in the district, which would have been a new experience, but suddenly they disappeared. No doubt it was the refuse of the camp that kept them so long. There were also a few Lesser Black-backed Gulls about, but they are regular winter visitors.

Inver is situated about as far from the sea as it is possible to get in Scotland, and so Charles Macintosh had few opportunities of studying the habits of sea-birds, except in the case of those, like the Gulls, that came as temporary visitors. It was a great delight, therefore, when he went to visit his sister at Inverness, to wander along the banks of the river and the canal, and to watch the sea-birds that came up there from the Moray Firth.

It was in 1905, when Macintosh was sixty-six years of age, that Mr. Harvie-Brown, then engaged on the compilation of the *Fauna*, wrote to him, asking him to undertake a survey of the bird-life of Strathbraan. He at once took up the task with characteristic enthusiasm, and the results are generously acknowledged in more than one passage in the book. Altogether there are about a score of references to his records, all bearing evidence of careful and accurate observation. In the preface, Mr. Harvie-Brown thanks him for daily observations made, at his request, in excursions through his native glen in 1905, and adds: "Mr. Charles Macintosh, ex-post-runner, Inver, who is well acquainted with the ornithology of Strathbraan and the district around Dunkeld . . . is a careful and accurate observer, and his identifications may be relied upon as correct."

In order to illustrate the comparative richness of the avifauna of a typical Central Perthshire valley, below and on the skirts of the heather zone, Mr. Harvie-Brown, as mentioned above, requested Charles Macintosh to make a detailed survey of the bird inhabitants of Strathbraan. This he did on several different dates in June and July, 1905, keeping a careful note of the numbers of individuals which were seen, of each of the

common species. In the course of these surveys he traversed the whole of Strathbraan, from Inver, at the junction with Strathtay, to Amulree, near the source in Loch Freuchie, going up the one side and down the other. In this way he covered twenty-six miles on foot, making observations all the way. The following is a list of the species he observed, with the number of individuals of each :—

Willow-Warblers	136	Wheatears	5
Lapwings	103	Corncrakes	4
Chaffinches	99	Greenfinches	4
Blackbirds	68	Common Wrens	4
Cuckoos	43	Missel Thrushes	2
Yellow Hammers	30	Dippers	2 young ones
Meadow Pipits	30	Redstart	1
Larks	22	Sedge Warbler	1
Common Sandpipers	22	Grey Wagtail	1
White Throats	21	Wild Duck	1
Song Thrushes	18	Moorhen	1
Curlews	17	Snipe	1
Redshanks	16	Sand Martins	Two colonies
Pied Wagtails	15	House Martins	Numerous
Wood Warblers	8	Swallows	Numerous
Tree Pipits	8	Starlings	Innumerable
Whinchats	7	Sparrows	Innumerable

He remarks on the absence of the Swift, which was abundant that season in other parts, and adds that the Wood-Warbler and the Tree Pipit may be about Kinloch House, in the upper part of the Glen.

A number of interesting notes, supplied by Mr. Macintosh, are scattered throughout the *Fauna*. He remarks, for instance, that the Ring Ouzel is always to be found at certain places in the Strathbraan district, as Glen Garr, Craig-na-Huagh, above the Glac saw-mill, and at Amulree. The numbers of the Wheatears remain fairly constant from year to year. The Whinchat is found here and there on clumps of whin every season, but he has never seen its cousin, the Stonechat, in the district, although it is fairly common in glens in other parts of the Highlands. That striking little bird, the Redstart, which is so common in the Swiss Highlands, comes to the Dunkeld district every summer, but its numbers are generally restricted to three or four pairs. The Skylark seems to be much less abundant in Strathbraan than in most other parts of the Highlands.

Mr. Harvie-Brown says that Charles Macintosh felt perfectly sure that at least two pairs of Chiff Chaffs frequented the woods about Inver, as he thought he could not mistake its note. He adds that Mr. Rodger, of the Perth Museum, had informed him that he had been present with Mr. Macintosh,[1] and had distinguished the

[1] The writer happened to be present on that occasion also, and was struck with the peculiar call-note, unlike that of any other bird.

voice of at least two birds, as described by the latter. Yet Mr. Harvie-Brown is not quite convinced, for Mr. J. G. Millais, who was a most practised observer, and had spent several years in the district, had failed to detect it.

An interesting note appears in connection with the distribution of the Common Crossbill. This bird, whose food consists of the cones of the Larch, was unknown in the Dunkeld district until the Larch-trees began to be planted on an extensive scale by John, fourth Duke of Atholl, towards the end of the eighteenth century. After that time the Crossbills became fairly abundant. It has been observed, too, that they are more plentiful in years when there is an extra large crop of cones on the Larches. This is another example of the interdependence of the worlds of animal and plant life on each other.

The Goosander affords an example of the laws of dispersal of species. This is a bird which was hardly known to exist in the Dunkeld district some forty or fifty years ago, but now it is fairly common. The first nest ever got in Perthshire, or, indeed, in Scotland, was sent to Mr. Harvie-Brown, having been got in 1871, by the side of Loch Ericht. In 1905 Charles Macintosh saw what he took to be a brood of Goosanders, about two miles above Dunkeld

Bridge, making their way down the stream. They were seen by one of the fishermen, who thought they were Cormorants, but the gamekeeper, who had seen Goosanders in the North, where they are more common, confirmed Macintosh's identification. Mr. Harvie-Brown adds that this observation interests him because "the now well-known tendency of these birds to follow the stream, and so in time extend their breeding areas, receives another strong illustration." [1]

The love of birds remained a passion with Charles Macintosh up to the very end. During the last year of his life he was in the habit of going over to Dunkeld every day to dine at his brother's house, as there was no one to prepare his meals at home. In the spring of that year a Spotted Flycatcher had built its nest by the bank of the river near the end of Dunkeld Bridge, and Charlie used to report the progress of the venture every day, with great delight, to his relatives in Dunkeld. First he noted the building operations, day by day, towards the end of May. Then, early in June, he saw the dull white eggs, blotched with red, appear one

[1] I have seen the same phenomenon on the river opposite Tay Street, at Perth, of a brood of young Goosanders making their way down the stream with great noise and commotion.—H. C.

by one, until four or five had been laid in the little cup of moss and grass, decorated with cobwebs and tufts of lichen. But his chief joy was when the little chicks began to appear. He would watch the parent birds darting round the edges of the trees, or skimming over the surface of the water, catching flies, as only Flycatchers can, and taking them to the gaping brood in the nest. This was probably his last study in bird-life, for the Flycatchers had left for a more genial clime by the end of September, and by that time his active career as a field naturalist had come to a close.

One illustration may serve to show his interest in the four-footed beasts of the forest. Among the little people of the wild, none attracted him more than the Squirrel, with its glossy coat and its large inquisitive eyes. It is not generally known that the Squirrel, although a true native of this country, was practically extinct in Scotland little more than a century ago. Towards the end of the eighteenth century it was reintroduced in the Dunkeld district by the fourth Duke of Atholl, and from there it rapidly spread in all directions. In the course of a few years it made its appearance in Strathmore, in Breadalbane, and in the Atholl Highlands. If this was a matter for regret on the part of the forester,

on account of the damage which these little rodents inflict on the bark of young trees, it was at the same time a matter for rejoicing by the farmer, for the Squirrels destroy large numbers of young Wood Pigeons, which are his worst enemies. Charles Macintosh made a special study of the food of the Squirrels, and found that in autumn they appeared to thrive on a diet of fungi, belonging to several different species, the names of which he carefully noted, and recorded in a Paper communicated to the Perthshire Society of Natural Science in 1902. The curious thing is that several of these fungi belong to species which, to man, are deadly poisons, but which seem to be harmless to the Squirrel. The same, of course, is true with regard to certain slugs which are habitually found browsing on these poisonous "toadstools." He goes on to say that he never knew of any damage being done by Squirrels to trees or fruit in the gardens about Inver, but he rightly observes that rabbits are the chief sinners in the matter of peeling the bark off young trees, as far as they can reach from the ground. He considered that squirrels only did damage to the trees when their ordinary food supply—nuts of various kinds—ran short. Here, again, it was a question of the Balance of Nature.

I shall conclude this chapter by reference to a humbler member of the animal kingdom. In the first few years of the present century, when Mr. J. W. Taylor, of Leeds, was preparing the second volume of his great work, *The Monograph of the Land and Freshwater Mollusca of the British Isles*, dealing with the various orders of the slugs, Mr. W. D. Roebuck, the Recorder of the Conchological Society of Great Britain and Ireland, sent out an appeal to naturalists in all parts of the country, urging them to complete the census of county records as quickly as possible. Amongst those into whose hands this appeal came was our naturalist at Inver, and he at once set to work investigating the slug-fauna of his district. The woods and fields around Inver proved a productive hunting-ground, and soon a number of new records were added. The most interesting of these was the Slender Slug, *Limax tenellus*, a species practically confined to woods, where it lives among the pine needles and feeds chiefly on fungi in the autumn. It was on the latter that Macintosh first found it, in September, 1904. This slug had been known previously in this country, but had been lost sight of for many years, and had long been regarded as extinct, so far as Britain is concerned. About the same time it

was found in the Forest of Rothiemurchus, and in the Clackmannan pine forest, but Charles Macintosh's discovery was quite independent, and almost simultaneous. Slugs are perhaps not usually regarded as objects of admiration, and yet this little yellow creature, with its slender and delicately-shaped body and waving tentacles, is by no means devoid of beauty, as it moves gracefully over the top of a gaily-coloured toadstool. If Charles Macintosh was not actually its discoverer, he could at least claim to have assisted in its re-discovery.

CHAPTER XIII

AS A STUDENT OF THE ROCKS, AND THE STRUCTURE OF THE EARTH

Geology was a subject in which Charles Macintosh, as a devoted student of nature, could not fail to take a deep interest; but it was one in which he was not so deeply versed as he was in the biological sciences. Perhaps this was because, in his earlier days, he had no one to guide his studies in this particular direction; and also because he did not have access to books of reference on the subject. Yet he always took a general interest in the stony science. As early as the time when he was post-runner between Dunkeld and Tullymet, before the railway was opened from Dunkeld to Inverness, we find him examining the rock-sections which were being opened up in the neighbourhood of Inver, where the line passes through a tunnel under Craig Vinean. This cutting would pass through the band of Schistose Grit and Graywacke which intervenes between the narrow band of

Clay Slate which crops out in Birnam Hill and Newtyle Hill to the south-east, and the massive development of Mica Schist which lies to the north-west. All these successive zones are members of the Highland Metamorphic Series of very ancient rocks which make up the *massif* of the Central Highlands. In these schistose rocks he would note the curious foliated or crumpled structure of the strata, produced by the pressure to which they had been subjected in the course of long ages. Where veins of white quartz or other minerals are present, this foliation produces very beautiful results, which the visitor to the Highlands must often have noticed on the boulders which lie scattered over the hill-sides.

Another section which Macintosh was fond of visiting was in Ladywell whin-stone quarry, near Birnam Station, where "road-metal" was got. This section exposes a formation at the other extreme of the geological scale from the schists we have been referring to. If the latter are amongst the oldest rocks of the Earth's crust, the whin-stone of this quarry is amongst the newest. The quarry has been cut in one of the "Trap Dykes" which run across Scotland in an approximately east and west direction. The rock consists of a Basalt, that is, a consoli-

Photo by the Author.

CHARLES MACINTOSH IN LADYWELL QUARRY, NEAR BIRNAM.

Photo by the Author.

DEADWATER AT KINDALLACHAN, ABOVE GUAY, WITH ANCIENT RIVER TERRACE ON THE LEFT, AND ALSO ON THE OPPOSITE SIDE OF THE VALLEY.

dated and crystalline lava, which, in a molten condition, had filled up a succession of fissures or rents which had opened up during a time of volcanic disturbance. The age of this disturbance was the last of the three great divisions of geological time, the Tertiary Period, so that these Basalts represent, comparatively speaking, a very young formation.

Yet another series of sections which interested him greatly were those exposed in the slate quarries of Birnam and Newtyle. These represent a narrow band of Clay Slate which runs right across Scotland, parallel with, and not far from, the boundary between the Highland and Lowland formations. This slate had originally been laid down as a fine stratified clay or mud, and afterwards consolidated into a shale; but subsequent pressure had rearranged its particles, and produced a cleavage entirely independent of the original stratification. It is this cleavage which makes them so useful for economic purposes. These slate quarries are of special interest to the mineralogist, as a number of interesting minerals occur as veins or intrusions running through the rock, sometimes producing very beautiful effects against the dark background of the slate. One of these minerals in particular, known as Pickeringite, a magnesia-alum com-

pound, is of extreme rarity. Indeed, the Newtyle Quarry, where Mr. J. B. Corr, of the Dundee Museum, found it some years ago, is the only locality where it has been detected in Britain, and there are only one or two places abroad where it is known to occur. Charlie Macintosh was greatly interested in this discovery, and went back to the quarry on several occasions to try to get more specimens, but without much success. It forms delicately silky fibrous masses on the surface of the slate.

Perhaps the features of Strathtay which interested Macintosh most, from a geological point of view, were the remains of ancient river terraces, which form such prominent features in the landscape, and also the more recent "haugh-lands" and "dead-waters" of the valley. On one of the last occasions on which the present writer visited his old friend at Inver, the latter took him to an eminence about half a mile beyond the village, and pointed out, with great eagerness and delight, a vista which the cutting down of the woods had opened up, revealing a striking view of the old terrace running up the side of the valley. In pre-war days, when the hills had been thickly covered with trees, this particular terrace had hardly been visible.

These high fragments of ancient river terraces

Photo by the Author.

ANCIENT RIVER TERRACE IN THE VALLEY OF THE TAY ABOVE INVER.

Photo by the Author.

GLACIATED ROCK SURFACE, NEAR BIRNAM.

were formerly supposed to represent the margins of an old lake, which it was thought had at one time filled the valley from side to side. Closer examination, however, has revealed the fact that they are made up of true river material, and that they were formed after the close of the Great Ice Age, when the melting of the ice-sheet, and the glaciers in the side valleys, liberated vast quantities of silt and sand and gravel which had been ground up by the moving ice. The action was the same as that of which the river is the agent at the present day, although the scale was greater, because the river had more material to work upon. This view was accepted by Charlie Macintosh before it became the generally accepted opinion of geologists.

For the same reason, Macintosh studied with great interest and care the workings and the varying levels of the river as it is to-day. He noted all the floods, or "spates," and the effect these had in spreading a fresh deposit of detritus on the lower haughlands, in building up fresh shingle-beds, and in gradually altering the course of the river. During his rounds as post-runner, he could see the old "dead-waters" at various points in the Strath, some of them almost dried up, and he recognized that these represented various stages in the process by which the river

gradually builds up the flat valley-floor, as its course slowly oscillates from side to side of the Strath through the centuries.

Charles Macintosh also looked out for direct evidences of the Ice Age in his district. These he found in smoothed and ice-scratched rock surfaces, in grooved and striated boulders, in perched blocks, and in the accumulations of Boulder Clay, especially in the smaller side valleys which open out from the straths. He used to point out a remarkably fine example of the first of these—an ice-scratched surface—by the side of the railway between Birnam and Inver. Of perched blocks, one of the finest in the country is to be seen on the summit of Craigie Barns, where Charlie used to take his friends to inspect it. It is a mass of beautifully foliated schist, about the size of a small cottage, resting on three smaller boulders, which had been underneath it as the ice melted, and left it stranded.[1]

When on Craigie Barns, he would also point out the line of the "Great Fault," which cuts through the back of the hill, and which can, in places, be traced by the fractured nature of the rock.

[1] The exact size of this perched block is 13 feet in length by 7 feet in breadth and 5 feet in height.

Photo by the Author.

BOULDER CLAY AT BALNAGUARD, NEAR LOGIERAIT.

Photo by Wm. Ellison.

PERCHED BOULDER ON CRAIGIE BARNS, DUNKELD.

Charles Macintosh has not left any written memoranda on his geological observations, but they were a favourite topic of conversation, at any rate when the present writer was with him. To accompany him on a geological ramble was a rare treat, not soon to be forgotten. What was particularly noticeable was the tone of reverence in which he spoke of the vast processes of Nature as revealed in the study of the rocks.

CHAPTER XIV

AS AN OBSERVER OF THE WEATHER, AND RECORDER OF NATURAL PHENOMENA.[1]

Some people are inclined to look on meteorology as rather a dry-as-dust science. This perhaps is because they associate it only with columns of figures and other statistics, without realizing that these are merely the framework on which most interesting generalizations are built, affecting many aspects of nature, both animate and inanimate. In this sense Charles Macintosh was a true meteorologist, for he not only accumulated data laboriously and patiently, day by day and year by year, but he was constantly applying the generalizations founded on these data to the problems of animal and plant life, and to the physical processes going on around him, in the

[1] Most of the facts narrated in this chapter were communicated to the author by Mr. Macintosh himself, when, some years ago, the former was preparing a Paper for the Perthshire Society of Natural Science on *The Floods and Droughts of the Tay Valley*.

hills and valleys, in the growth of soils, and in changes in the topographical features of his district.

He had a number of simple, but serviceable meteorological instruments, and with these he made daily observations of the rainfall, the temperature, and the barometrical pressure. These records were carefully copied out at the end of each month, and sent to the Perth Museum, whence they were transmitted to the meteorological authorities in Edinburgh and London. Particular attention was paid to the rainfall, and for a long series of years the returns were supplied, without any break, to the Rainfall Organization in London, first under Mr. G. J. Symons, and then under Dr. Hugh Robert Mill. Amongst Charles Macintosh's papers is a letter from Dr. Mill thanking him for his valuable assistance during all the time the Doctor had held the directorship. This organization has observers and recorders in every part of the British Isles, and the work they do is of the utmost importance, not only to students in various branches of science, but also to civil engineers, in preparing plans for the water-supply of our great cities. Accurate statistics of local rainfall are, of course, the indispensable bases of all such schemes.

It is but a short step to pass from rainfall to floods and droughts, for these are the outcome of the former. The average rainfall of Central Perthshire is about thirty inches a year. When this is maintained, there is a regular and normal flow of the surplus water off the surface of the land in the form of streams and rivers; if it is greatly exceeded, flooding results, to a greater or less degree, while, if the amount falls much below that figure, a drought follows, streams fall below their normal level, the soil loses its reserve of moisture, and plant and animal life suffer accordingly. It was for these reasons that Charles Macintosh was so greatly interested in watching and recording the changing levels of the Tay and its tributaries, and in noting the physical and biological effects of these changes.

We may now consider in some little detail the more important floods and droughts, etc., that Charles Macintosh recorded during his long life-time in the Dunkeld district.

Floods.

The first flood to which he refers occurred in 1847, when he was a boy, eight years of age. This flood, which was long remembered by the inhabitants of the Strath, was the second highest of the century, the highest having occurred in

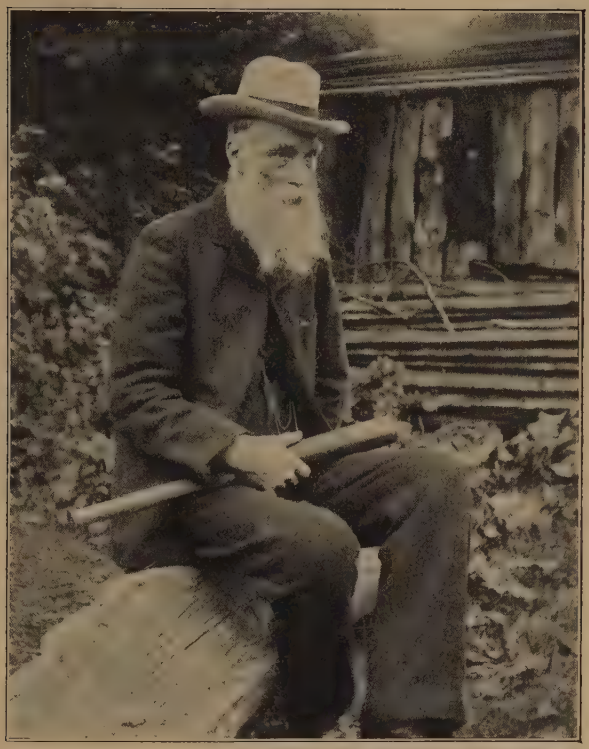


Photo by Jas. Macintosh.

CHARLES MACINTOSH WITH HIS TELESCOPE.

Photo by A. M. Rodger.

CHARLES MACINTOSH BY THE FLOOD MARKS ON THE TREE AT INVER.

1814. It occurred on October 7, 1847. The River Tay at Perth Bridge rose to a height of fully twelve feet above the normal level, which represents an enormous volume of water in such a swiftly-flowing stream. In the Dunkeld district the inundation was so great that Johnnie Lauder, who was the "Postie" of those days from Dunkeld down to Delvine and Spittalfield,[1] had to sail in a boat clear over the tops of hedges and fences.

The next great flood at Inver occurred in 1868. Charles Macintosh refers to this one particularly, in a Note which he contributed to the Perthshire Society of Natural Science. He said it was one of the heaviest recorded floods of the Tay in his district, and did great damage between Dalguise and Dalmarnock, particularly to the railway embankments. At Inver, the river reached within an inch or two of the maximum reached in 1847. There is still standing on the bank of the Tay, where the Inver Lade flows into it, a tree, on the bark of which Macintosh cut notches, marking the heights of the various floods he had witnessed. In the Paper just referred to, he notes how the fringes of oaks, alders, willows and other trees with strong, tough roots, which

[1] "Spittalfield" is a corruption, or contraction, of "Hospitalfield."

are so common by the sides of streams in the Highlands, serve to protect the banks from erosion by the water in times of flooding. He describes how at one point, below Inchmagranachan, this fringe of wooding had been cut down, and, in consequence, the haughland, with its rich alluvial soil, had entirely disappeared.

The next great flood that he records was in 1894. It reached its height on February 7th, when the whole of the lower haughlands and large stretches of the upper haughlands throughout the Tay Valley were under water. Great damage was done to the cultivated lands, the traces of which were visible for long afterwards. During the month of February, eight inches of rain fell at Dunkeld, most of it just before the flooding.

The next was a winter flood also, occurring on January 31, 1903. Charles Macintosh records that on this occasion the river at Inver was only four inches lower than it was in 1868, and the damage to land, embankments, etc., was just about as great. For a week before the 31st, there had been almost continuous rain, with strong westerly gales.

Just ten years later, in 1913, severe floods occurred on May 9th, and again on August 20th. These were the highest summer floods recorded

in Perthshire, and were very widespread and destructive.

Charles Macintosh recorded a number of other "Spates" also, but these were the most memorable.

Droughts.

Coming now to the other end of the scale, we find that the River Tay reached its lowest level at Inver in the year 1826.

This was thirteen years before Charles Macintosh was born, but we mention it because it long remained a tradition in the Dunkeld district, and he often referred to it, in comparing the levels at different periods. The first drought that he records from personal observation occurred in 1887. He says that this was the second lowest of the century, that of 1826 having been the lowest.

During the summer of 1894 there was a prolonged drought, which reached its climax on October 4th. By that time the Tay and its tributaries had been reduced to almost phenomenally small proportions. During three months, only half an inch of rain had fallen. It was in this year that Charles Macintosh commenced a permanent record of the low levels of the Tay, by cutting grooves on a rock in the bed of the

river near Inver. No such record had been kept in the district before, so that there is no means of comparing the 1894 level with that of 1826, but old men who remembered the latter said that it was very nearly equalled by the more recent low level. In subsequent dry seasons he kept the marked rock constantly under observation. In 1911, the 1894 notch again became visible, but then it was still one and a half inches under the surface of the water.

It was not until 1913 that the original 1894 mark was entirely uncovered. During that summer hardly any rain had fallen from the beginning of June till the end of September, by which time the land had become parched, and the streams almost dried up. The River Tay at Inver fell six and three-quarter inches below the 1894 mark, and a fresh notch was cut, indicating the new record.

It is a remarkable fact that the droughts both of 1894 and 1913 followed equally pronounced floods in the earlier portions of the same years. In the former year, the whole of the Tay Valley was in high flood in February, and was dried up in October. In 1913 it was inundated in May, and parched in September.

The last drought that Charles Macintosh

recorded occurred in the summer of 1921, just two months before the beginning of his last illness. The season had been an exceedingly hot and dry one, and towards its close the River Tay at Inver fell to within four inches of the 1913 mark. At Dunkeld, however, where the water is more spread out, it fell to within one and three-quarter inches. In these observations Charles was always assisted by his brother James.

Storms.

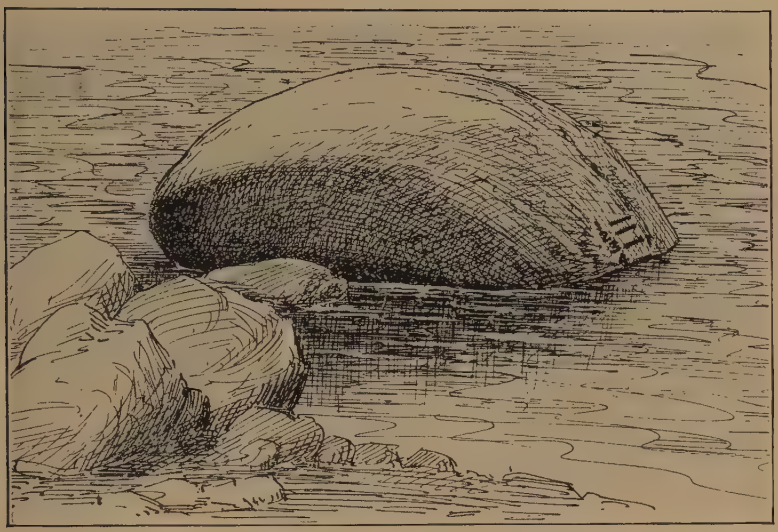
During Charles Macintosh's lifetime, the Dunkeld district was twice devastated by storms of exceptional violence. These were the Tay Bridge storm, of December 28, 1879, and the great gale of November 17, 1893. The latter is specially referred to in his diary as having done immense damage to wooding. The wind velocity on that occasion, ninety-six miles an hour, is said to have been the highest ever recorded in this country. The hurricane lasted for the greater part of two days, and, when it abated, large tracts of Central Perthshire presented scenes of the utmost desolation. Roads and railways in all directions were blocked with fallen timber; miles of telegraph poles were laid low; whole hillsides were stripped bare of

wooding; hundreds of houses and cottages had their slates blown off, and chimneys torn down; and stacks of hay and corn were blown down, and scattered in all directions. On Craig Vinean alone, in the Dunkeld district, some ten or twelve thousand larch-trees were destroyed. In exposed places, they were torn up by the roots, but in many cases the trunks were broken across as if by some giant hand.

Charles Macintosh carefully noted the after-effects of this storm, both on plant and animal life. Many fungi which love the shade disappeared, while others which prefer open situations took their place. Many woodland birds lost their homes, and the insect world was equally affected. Changes were wrought on the face of nature in one night which it took a generation to obliterate. Even the climate of the district was affected to some extent by the stripping of the woodlands; and, of course, from an æsthetic point of view, the landscape suffered sadly.

Frosts.

Charles Macintosh recorded two very severe frosts in his district during his lifetime, in 1891 and 1895, but in addition he remembered hearing his father speak of a still more intense frost



From a Sketch by Charles Macintosh.

STONE IN THE TAY AT INVER, MARKING EXCEPTIONALLY LOW WATER.

Photo by A. F. Mackenzie.

CHARLES MACINTOSH AND "CAILLEACH" ON THE FROZEN TAY AT INVER, FEBRUARY, 1895.

during the winter of 1813–14. From the beginning of December, 1813, till the end of February, 1814, not only the Tay, but its tributaries as well, were completely frozen over. The Duke of Atholl had cannon brought from Stanley Hill and placed in position ready to break up the ice, if it should endanger the newly-erected bridge at Dunkeld, but this did not prove to be necessary. When at length it did break up, the ice and the dammed-up waters came down in such masses that they produced the greatest flood of the century. On the North Inch of Perth the ice-floes were piled up like miniature icebergs, and a great part of the town was submerged. The immediate cause of this inundation was that the river still remained frozen below Perth, which prevented the ice and water from the upper reaches escaping.

In January, 1891, he recorded that the Tay was again frozen at Inver, but the greatest frost within his recollection was that of the winter 1894–95. Very severe frosts were experienced from the beginning of December, 1894, till the end of March, 1895. At Dunkeld the thermometer fell to four degrees below zero, F., on February 8th, and again on February 10th. For several weeks the Tay was frozen to a thickness of eighteen inches, and Charles Macintosh

and the other villagers used it as the shortest thoroughfare between Inver and Dunkeld. Not only the river, however, but the soil itself was frozen as hard as iron to a considerable depth. In wrought arable ground, the frost reached to a depth of from twenty to twenty-four inches below the surface; in grass parks, from twenty-six to twenty-eight inches; and in roads and walks, to thirty inches. This proved that a loose porous soil is a better protection from cold than one that is compact and heavy.

When the Tay froze across at Inver, Charlie Macintosh was the first to walk across it. He and Peter McLaren, the fisherman, had to dig out the boat, to save it from being crushed by the ice. In addition to walking down to Dunkeld, he was able to walk for some miles up the river as well. In doing so he was greeted by a succession of loud reports, like revolver shots. These, he discovered, were caused by the bursting of the bark of the trees growing by the banks of the river, as the sap or moisture froze. In this way much damage was done to the wooding.

In Dunkeld all the springs and all the water-pipes were frozen for eight or nine weeks, during which time the inhabitants could only get water by cutting holes in the ice covering the River Tay. Water put in a bath before the kitchen

fire at night was frozen hard by morning, and had to be broken up with an axe.

Both plant and animal life suffered severely. Many of the birds and smaller quadrupeds were found dead on the ground, either starved for lack of their usual food supply, or frozen to death. During this frost the Dunkeld district seems to have suffered more than most parts of the country.

Meteoric Falls.

We come lastly to a natural phenomenon which is rare in this country, but which Charles Macintosh twice recorded in the course of his lifetime. This is the visible fall of meteorites to the earth. The two occasions were in November, 1852, and December, 1917, when he was thirteen and seventy-eight years of age respectively. On the first of these, he was crossing Dunkeld Bridge one dark night, along with his mother and his brother James. While Mrs. McIntosh was paying the toll which was then levied on the bridge, the boys saw a bright object coming from the direction of the Cathedral, and then heard a crash among the trees by the river. The actual meteorite was never found, but there can be no doubt that what was seen and heard by the two boys on that occasion was one of these rare celestial visitors.

The Meteoric Fall of December 3, 1917, was witnessed and heard by a number of persons in different parts of the country, whose evidence was carefully recorded immediately afterwards.[1] It created an extraordinary amount of interest at the time. Four of the meteoric fragments were recovered, all within six miles of each other, in the Coupar Angus district, about ten miles to the east of Dunkeld. One of these fragments crashed through the roof of a cottage, but fortunately no one was hurt. They varied from two and a half to over twenty-two pounds in weight. Charles Macintosh was not one of the actual witnesses of the fall, but naturally he was greatly interested in the phenomenon at the time, comparing it with his own experience sixty-five years earlier.

[1] See *History of the Strathmore Meteoric Fall of 3rd December*, 1917, by the present writer, published by the Perthshire Society of Natural Science.

CHAPTER XV

HIS INTEREST IN THE LORE OF OTHER DAYS

If Charles Macintosh was a keen naturalist, he had also the true spirit of the antiquarian. He was ever on the outlook for relics of past conditions of civilization, both historic and prehistoric. The region in which he lived yielded many such remains. In the course of his rambles he kept a constant watch for cup-marked stones, standing stones, ruined forts, ancient weapons, etc., as well as implements of much more recent cultures. Where these could not be removed, he made careful drawings of them in his sketch book, with notes of measurements, and other data.

The cup-marked stones interested him specially, partly, perhaps, on account of the mystery surrounding their origin and meaning. Many theories have been advanced as to their age and the purpose for which they were intended, but

it must be confessed that not much light has yet been shed on the problem, which is shrouded in the mists of antiquity. Many examples are to be met with on the hillsides and in the valleys in the Dunkeld district, and Charles Macintosh added to the number of those that have been figured and described. One of the last that he discovered was a cup-marked boulder on the heather-clad western slope of Birnam Hill, above the farm of Balhomish. This was not very long before he died, but he had keen delight in taking one or two of his friends to see it. The stone had about a dozen cups clearly incised on its surface, averaging about two inches in diameter by one inch in depth. Sometimes these cups are surrounded by incised rings, while in other cases they are connected by shallow channels. Some archæologists who have made a keen study of these cup-markings have come to the conclusion that they have an astronomical meaning.

Another type of prehistoric remains which is well represented in Strathtay consists of the standing stones, which are conspicuous features in many of the fields. These are supposed to date from the Bronze Age. To the same age belong the *tumuli*, or burial mounds, of which several are to be found in the district. These are symmetrical circular mounds, generally crowned

with trees, and thus clearly defined as they rise up from a level field. Some of those that have been opened were found to contain built stone coffins.

Another type of burial remains for which Macintosh was constantly on the outlook was the short stone cist, belonging to the same period, which is generally got, not in a mound, but in a flat field. Its presence is sometimes revealed by the plough, and sometimes in cutting drains, or other trenching operations. These cists consist of hollow chambers, contained within four rough slabs of stone, and covered with a fifth slab. Sometimes they contain the remains of human bones, at other times rough earthenware urns, or bronze ornaments or weapons. The urns may be of one or other of two types,—incinerary urns, for holding the ashes of the dead, or smaller food urns, containing food for the departed spirit. Cists have been found in Perthshire containing all these different remains, sometimes in a state of high preservation. Sometimes, too, the cover-stone is cup-marked. The age of these cists is sufficiently indicated by the articles of bronze which are found in them from time to time.

Charles Macintosh sent to the Perthshire Society of Natural Science a Note describing the finding of one of these cists at Kincraigie, near Dalguise,

when he was on that route, shortly before he retired from the postal service in 1890. It was in a ploughed field, not far from the farmsteading, and the cover-stone had been struck by the plough. It was quite a short cist, being only about three feet long, by one foot wide, and contained a perfect urn. As the chamber was so small, it is probable that the urn was an incinerary one, as otherwise the cist would only have held the remains of a small child. The urn was taken possession of by the late Duke of Atholl, and is now in Blair Castle, where there is a very fine collection of local archæological remains. Macintosh records that the farmer and his wife were much annoyed at the cist being interfered with, as they looked upon it as the desecration of a grave, which, in the Highlands, is considered to be most unlucky. The question the archæologist has to ask himself is—"When does a grave cease to be a grave, and become a monument of antiquity?"

Charles Macintosh was interested, however, in objects of much greater antiquity than the Bronze Age Cists and Tumuli. He was constantly on the outlook for remains of the Stone Ages—Palæolithic and Neolithic weapons and other implements. He was one of those who believed that Palæolithic Man flourished, not only in

the South of England and the North of France, but in Scotland as well, a view which is gradually coming to be held by many students of pre-history.[1] The implements fashioned by that ancient man were not made of flint, as in England, for the simple reason that flint hardly exists in Scotland, but were rudely wrought from whatever hard rock lay nearest to his hand—quartzite, limestone, porphyrite, ironstone, or schist, as the case might be.

From time to time examples of the highly-wrought handiwork of the more recent Neolithic Man came to light, in the form of arrow-tips, spear-heads, celts, etc. These Charles Macintosh carefully examined and recorded, but the specimens themselves were generally added to the collections at Blair Castle. Some were elaborately and symmetrically chipped, while others, such as the stone axes, were beautifully polished.

Coming to more recent times, Macintosh examined with much interest the remains of ancient fortifications which have been discovered on Birnam Hill, and have been fully described by Mr. Thomas McLaren, Borough Surveyor of Perth, in the *Proceedings of the Society of*

[1] This view was first prominently brought forward in *The Stone Ages of North Britain and Ireland*, by Rev. F. Smith.

Antiquaries of Scotland. Of these remains, which are known as " Duncan's Camp " and " Rohallion Castle," the former belongs to the borderland of history and prehistory, and the latter to the sixteenth century.

Coming down to nearly modern times, Charles Macintosh made a hobby of collecting objects of domestic economy which had been in use in the Highlands until a generation or two ago. These consisted of such things as the equipment of a cottage kitchen fire in olden times, cruisies, candle-moulds, old knives and forks, spinning wheels, articles used by the hand-loom weavers, and ancient locks and bolts; also obsolete agricultural implements, old flint-locks, smuggling utensils, etc. These he gathered from old cottages and farms, not in the spirit of the mere collector of " curios," but to illustrate the folk-lore of his district, and the life of the people in times past. Many of the objects seemed trivial enough to the casual observer, and yet they might be of priceless value to the serious student of history a century or two after this. He had no selfish object in view in getting these things together, for he was always willing to hand them over to the Perth Museum, or any other institution where they would be properly conserved. This proves what we said at the beginning of this

chapter, that he had the true spirit of the antiquarian. It would be well if other collectors, with more means at their disposal than Charlie had, would follow his example, for it is only in public institutions that objects either of antiquarian or scientific interest can be preserved for all time, and made available for comparative study by the antiquarian or the naturalist.

APPENDIX A

LIST OF PAPERS BY CHARLES MACINTOSH PUBLISHED IN THE *TRANSACTIONS AND PROCEEDINGS OF THE PERTHSHIRE SOCIETY OF NATURAL SCIENCE.*

1. Notes by a Naturalist round Dunkeld.
   Read Feb. 10, 1898. Trans., Vol. II, page 223.
2. Seasonal Notes, 1899.
   Read Nov. 9, 1899. Proc., Vol. III, page l.
3. Notes on the Feeding Habits of Squirrels.
   Read Feb. 13, 1902. Proc., Vol. III, page cxvii.
4. On a New Species of Fungus found at Inver. (*Cucurbitaria pithyophila*, Fr.)
   Read Feb. 13, 1908. Proc., Vol. IV, page clxxxii.
5. Notes on Certain Fungi got round Inver.
   Read April 8, 1909. Proc., Vol. V, page xxi.
6. Notes on the Floods of 1868 and 1903.
   Read Nov. 11, 1909. Proc., Vol. V, page lx.
7. Notes. (*a*) The Drought of 1913. (*b*) A Ring Ouzel. (*c*) A Curious Stone. (*d*) A Plague of Caterpillars.
   Read Nov. 13, 1913. Trans., Vol. VI, page 1.
8. Note on the Black-headed Gull at the Scottish Horse Camp, Inver, in Winter Plumage.
   Read Jan. 13, 1916. Proc., Vol. VI, page cxi.
9. On the Discovery, at Dunkeld, of a Discomycete New to Science.
   Read March 9, 1916. Proc., Vol. VI, page cxiii.
10. Note on a Stone Cist found at Dalguise.
    Read April 12, 1918. Trans., Vol. VI, page 206.

APPENDIX B

NOTE BY MR. CARLETON REA, B.C.L., M.A., WORCESTER, LATE SECRETARY OF THE BRITISH MYCOLOGICAL SOCIETY, ON NEW FUNGI DISCOVERED BY CHARLES MACINTOSH, WITH A LIST OF SPECIES

It was, I believe, in the year 1906 that I first had the good fortune to make the acquaintance of Charles Macintosh, at the autumn foray of the Cryptogamic Society of Scotland at Blair Atholl. I found that he was an enthusiastic collector of our fungi, and had a fair general knowledge of the commoner species. Since then, I have received consignments of many interesting species from him, chiefly through the intervention of our mutual friend, Mr. James Menzies, of Perth. He invariably sent on critical species that could not be determined by the books at his command, and these were always accompanied by accurate notes as to the habitat, the form and dimensions of the asci, and paraphyses and spores. It is due to his investigations that the following species have been added to the British Fungus Flora, and all students of mycology are indebted to him for these interesting discoveries.

CARLETON REA.

LIST OF NEW FUNGI DISCOVERED BY CHARLES MACINTOSH

BASIDIOMYCETÆ

Hygrophorus pustulatus (Pers.) Fr. Trans. Brit. Myc. Soc. III, 227. Amongst spruce leaves on drained ground

planted with spruce twenty years ago, Inver, October 6, 1909. New to Britain. See Plate 30, fig. 1.

Poria placenta Fr. Trans. Brit. Myc. Soc. III, 230. On larch stumps, Inver, August 30, 1909. New to Britain. See Plate 30, fig. 2.

Trametes cinnabarina (Jacq.) Fr. Trans. Brit. Myc. Soc. IV, 311. Fallen birch trunk, Murthly, July 13, 1913. New to Britain. See Plate 30, fig. 3.

Cyphella villosa (Pers.) Quel. Trans. Brit. Myc. Soc. IV, 192. Dead fronds of *Lastrea Filix-mas* and *Athyrium Filix-fœmina*, Inver, October 29, 1912. New to Britain. See Plate 30, fig. 4.

Pyrenomycetæ

Curreyella Aucupariæ A. L. Sm. Trans. Brit. Myc. Soc. III, 43. On branches of *Pyrus aucuparia*, Dunkeld, February, 1907. New to science.

Cucurbitaria pithyophila de Not. Trans. Brit. Myc. Soc. III, 42. On bark of living and dead conifers, Dunkeld, May, 1907. New to Britain.

Sporormia lagopina Bres. Trans. Brit. Myc. Soc. III, 378. On grouse dung, Inver woods, Dunkeld, October, 1911. New to Britain.

Hypocrea pulvinata Fuck. Trans. Brit. Myc. Soc. III, 380. On decaying pilei of *Polyporus betulinus*, Inver, July 14, 1911. New to Britain.

Melogramma elongatum A. L. Sm. Trans. Brit. Myc. Soc. VI, 150. On rotten branches, Perth, 1893. New to science.

Discomycetæ

Ascobolus carletoni Boud. Trans. Brit. Myc. Soc. IV, 62. On capercailzie dung, Inver Woods, October, 1912. New to science.

Rhyparobius dubius Boud. var. *lagopus* Boud. Trans. Brit. Myc. Soc. III, 378. On grouse dung, Inver Woods, Dunkeld, October 28, 1911. New to Britain.

Cudonia confusa Bres. Trans. Brit. Myc. Soc. II, 168. In a broken circle under beeches near *Tsuga canadensis*, The Hermitage, Dunkeld, September 25, 1906. New to Britain. See Plate 31, fig. 1.

Ombrophila megalospora Rea. Trans. Brit. Myc. Soc. V, 256. On dead leaves of *Carex inflata*, Inver, August 1, 1915. New to science. See Plate 31, fig. 2.

Dasyscypha globuligera Fuck. Trans. Brit. Myc. Soc. III, 230. On decayed stems of heather and ash, Inver, January 9, 1909. New to Britain.

Pseudophacidum Callunæ Karst. Trans. Brit. Myc. Soc. III, 40. On heather stems, Dunkeld, February, 1907. New to Britain.

Encœlia tiliacea (Fr.) Karst. Trans. Brit. Myc. Soc. IV, 317. On dead lime branch, Inver, January 23, 1914. New to Britain. See Plate 31, fig. 3.

Scleroderris bacillifera (Karst) Sacc. Trans. Brit. Myc. Soc. II, 169. On dead branches of *Abies excelsa*, Dunkeld, July 20, 1906. New to Britain. See Plate 31, fig. 4.

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